

**A study on Mobility and Sexually Transmitted  
Diseases/HIV/AIDS risk among the mountain community of  
Mustang district, Nepal**



**Thesis submitted by: Shrestha Sumitra Devi**  
**As a partial fulfillment for the Master of Philosophy Degree in International  
Community Health**

**Supervisor: Professor Johanne Sundby, MD, Ph.D.,**



**Department of General Practice and Community Medicine,  
Faculty of Medicine, University of Oslo, NORWAY**

**July 2004**

## Acknowledgement

I wish to sincerely acknowledge the invaluable support and cooperation from a number of individuals and institutions that have contributed to this study. First and foremost my sincere gratitude goes to The Royal Norwegian Government, and also the NORAD Scholarships program through which I have pursued the Master of Philosophy degree in International Community Health at the University of Oslo, A true mile stone in my career. I wish to thank the head of the Department of General Practice and Community Medicine for International Community Health, Professor, Gunner Bjune, MD, PhD. Your demand on quality gave me the incentive to work hard. I also thank to the course co-coordinator Vibeke Christie and NORAD Student Advisor Lynn Josephson for their tireless efforts and contribution to make the study become reality and in the process facilitating my own professional development. I also thank Associate Professor Akhtar Hussain, MD, PhD for being generous to always answering my statistical queries.

I especially thank my supervisor Professor Johanne Sundby, MD, PhD for her invaluable support and cooperation on my thesis. Her tireless effort in supervising, reading and commenting on my thesis and her professional guidance from protocol development to final thesis preparation made possible this thesis. She provided me with constructive feedback and spent many hours making very valuable expert suggestions.

I sincerely thank to Dr. Jeevan Bahadur Serchand, PhD, TUTH Nepal, who provided supervision while I was in Nepal for field work. He mainly contributed for standardization of Nepali version questionnaire and information on Mustang district and the people. I also thank to Dr. Shyam Sunder Mishra, former director of the National Center for AIDS & STD Control (NCASC), Nepal for his moral support on choosing the study area and also providing encouragement. In general, I extend my thanks to NCASC team for providing me with logistics & other support for my study. I am deeply indebted to the people of Kagbeni and Jhong VDCs, of Mustang who reserved some of their valuable time in order to fill in my questionnaire, and shared their very private experiences. I am also grateful to Dr Surya Hamal, the chief of District Health Office Mustang and his team for providing me with logistic and professional support during my field work. I am also grateful to the health personnel working in the study areas. They provided me with valuable information. Furthermore, I also

acknowledge the contribution of Mr. Chandra Prakash Sigdel, Consultant, DDC, Mustang for providing valuable secondary data and re-printing the study questionnaires.

I am grateful to all my classmates for the enriching discussions, suggestions and comments. I am also grateful to the PhD students of our department: Dr. Suraj, Dr. Fakadu and Dr. Farah for their critical comments and suggestions on my thesis. Furthermore, I would like to extend my sincere gratitude to my friends and colleagues in Nepal who sent information, encouraged me, and otherwise contributed to and supported my study.

I also thank to my research team, whose tireless work in difficult situation made the data collection possible.

Thanks to my kids Prashant, Gaurav and husband RK Shrestha and my parents who always inspired me to contribute to society and for coping with my absence while I was in Norway.

This research project was mainly funded by NORAD, Ivar Helles Legat and GLOBINF Network, Oslo, Norway.

## TABLE OF CONTENTS

	<u>Page No.</u>
<a href="#"><i>Abstract.....</i></a>	<a href="#">vii</a>
<a href="#"><i>Glossary of Terms.....</i></a>	<a href="#">viii</a>
<a href="#"><i>List of Tables.....</i></a>	<a href="#">ix</a>
<a href="#"><i>List of Charts.....</i></a>	<a href="#">x</a>
<a href="#"><i>Abbreviations.....</i></a>	<a href="#">xi</a>
 <b>CHAPTER 1: INTRODUCTION.....</b>	 <b>1</b>
<a href="#">1.1 Background.....</a>	<a href="#">1</a>
<b><a href="#">1.2 Research Questions...</a></b>	<b><a href="#">2</a></b>
1.2.2 Hypothesis.....	<a href="#">2</a>
<a href="#">1.2.3 Objectives.....</a>	<a href="#">2</a>
1.2.4 Specific Objectives.....	<a href="#">2</a>
<b><a href="#">1.3 Research Need.....</a></b>	<b><a href="#">3</a></b>
1.3.1 Justification.....	<a href="#">3</a>
1.3.2 Personal experiences.....	<a href="#">4</a>
<b><a href="#">1.4 Country Profile of Nepal.....</a></b>	<b><a href="#">4</a></b>
1.4.1 Geography.....	 <a href="#">4</a>
1.4.2 Population and demographic characteristics.....	 <a href="#">5</a>
1.4.3 Health and Development status.....	 <a href="#">5</a>
1.4.4 Economy.....	 <a href="#">5</a>
1.4.5 Health Services delivery system.....	 <a href="#">6</a>
<b><a href="#">1.5 Study Area Mustang District.....</a></b>	<b><a href="#">7</a></b>
 <b>CHAPTER 2: LITERATURE REVIEW.....</b>	 <b><a href="#">10</a></b>
<b><a href="#">2.1 Sexually Transmitted Diseases.....</a></b>	<b><a href="#">10</a></b>
2.1.1 Global burden of STDs/HIV/AIDS.....	 <a href="#">10</a>
2.1.2 HIV situation in South Asia.....	<a href="#">11</a>
2.2.3 STDs/HIV situation in Nepal.....	<a href="#">11</a>
2.2.4 Migration and STI\HIV\AIDS risk in Nepal.....	 <a href="#">12</a>
<b><a href="#">2.2 Theoretical Perspectives.....</a></b>	<b><a href="#">14</a></b>
2.2.1 Migration Theory.....	<a href="#">14</a>
2.2.2 Theories and models on STIs/HIV transmission.....	<a href="#">14</a>
<b><a href="#">2.3 Factors responsible for transmission of STIs/HIV.....</a></b>	<b><a href="#">16</a></b>
2.3.1 Socio-demographic factors.....	 <a href="#">16</a>

2.3.1.1	
Age.....	1
6	
2.3.1.2 Gender.....	17
2.3.1.3 Marital	
status.....	17
2.3.1.4 Educational	
attainmen.....	17
2.3.1.5	
Ethnicity.....	18
<b>2.3.2 Behavioural factors.....</b>	<b>18</b>
2.3.2.1 Risky sexual behaviours (exposure to risk).....	
18	
2.3.2.2 Condom	
use.....	18
2.3.2.3 Cure seeking	
behaviour.....	19
2.3.3 Microbial factors.....	
20	
2.3.3.1 Signs and symptoms of Sexually Transmitted	
Diseases.....	20
<b>2.4 Evidence from previous studies in mobility and STDs/HIV/AIDS.....</b>	<b>21</b>
<b>2.5 Community Mobilization in STD/HIV prevention and Control.....</b>	<b>22</b>
 CHAPTER 3: METHODS & MATERIAL.....	23
<b>3.1 Study Design.....</b>	<b>23</b>
<b>3.2 Source Population.....</b>	<b>23</b>
3.2.1. Study Population.....	24
<b>3.3. Sample size and Sampe selection.....</b>	<b>24</b>
<b>3.4 Study Tools and variables.....</b>	<b>25</b>
3.4.1 Survey	
questionnaire.....	25
3.4.2 Focus Group Discussion	
Guideline.....	27
3.4.3 Focused Structured	
Interview.....	27
<b>3.5 Data</b>	
<b>collection.....</b>	<b>28</b>
3.5.1 Survey Questionnaire	
Administration.....	28
3.5.2 Focus group	
Discussion.....	28
3.5.3 Focused Structured Interview.....	
29	
<b>3.6 Pilot Testing.....</b>	<b>29</b>
<b>3.7Recruitment and training of interviewers.....</b>	<b>29</b>
<b>3.8 Data handling.....</b>	<b>30</b>
<b>3.9 Data Analysis.....</b>	<b>30</b>
3.9.1 Survey data analysis	
.....	30

3.9.2 Qualitative data	
Analysis.....	<a href="#">30</a>
3.9.3 Data integration.....	<a href="#">31</a>
<b>3.10 Ethical consideration.....</b>	<a href="#">31</a>
<b>3.11 Validity and reliability.....</b>	<a href="#">31</a>
 CHAPTER 4: STUDY RESULTS.....	33
<b>4.1 Socio-demographic characteristics of samples.....</b>	<a href="#">33</a>
<b>4.2 Risk exposure.....</b>	<a href="#">35</a>
4.2.1. Risky sexual behaviour.....	<a href="#">35</a>
4.2.1.1 Number of sexual partners.....	<a href="#">35</a>
4.2.1.2 Demographic and social factors in relation to number of partners.....	<a href="#">35</a>
4.2.1.3 Type of sexual partner.....	<a href="#">36</a>
<b>4.3 Condom use.....</b>	<a href="#">38</a>
4.3.1 Demographic and social factors in relation to condom use.....	<a href="#">38</a>
4.3.2 Type of partner and condom use.....	<a href="#">39</a>
4.3.3 Reasons for not using condom.....	<a href="#">40</a>
<b>4.4 Self- reported sexually transmitted diseases.....</b>	<a href="#">40</a>
4.4.1 Demographic and social factors in relation to current self-reported STDs.....	<a href="#">41</a>
4.4.2 Self-reported STDs in relation to type of partners.....	<a href="#">42</a>
4.4.3 Current self-reported STDs symptoms.....	<a href="#">43</a>
4.4.4 Shame and Stigma associated with STDs.....	<a href="#">43</a>
<b>4.5 Cure seeking behaviors.....</b>	<a href="#">44</a>
4.5.1 Response Taken.....	<a href="#">44</a>
4.5.2 Time Delay for Cure Seeking.....	<a href="#">45</a>
4.5.3 Source of Cure Sought.....	<a href="#">45</a>
<b>4.6 Self-reported STDs with respect to mobility related variables.....</b>	<a href="#">47</a>
<b>4.8 Descriptions of headman system.....</b>	<a href="#">49</a>
4.8.1 Structure and function.....	<a href="#">49</a>
4.8.2 Mobilization for prevention and control of STD/HIV/AIDS.....	<a href="#">50</a>
4.8.3 Community House in Katmandu.....	51
 CHAPTER 5: DISCUSSION.....	<a href="#">52</a>
<b>5.1 Risk behaviors.....</b>	<a href="#">52</a>
<b>5.2 Condom Usage.....</b>	<a href="#">55</a>
<b>5.3 Self-reported STDs.....</b>	<a href="#">57</a>
<b>5.4 Cure seeking behavior.....</b>	<a href="#">58</a>
5.4.1 Response Taken and Time Gap.....	<a href="#">58</a>

5.4.2 Source of Cure Sought.....	58
<b>5.5 STDs with respect to mobility and risk behaviors.....</b>	<b>59</b>
<b>5.7 About absentee population and outsider coming to Mustang district.....</b>	<b>61</b>
5.7.1 Mustang to Outside.....	61
5.7.2 Migrants to Mustang district.....	62
<b>5.8 Shortcomings, problems encountered and strengths.....</b>	<b>63</b>
<b>5.9 Limitations of the study.....</b>	<b>64</b>
5.9.1 Limitation in the design.....	64
5.9.2 Biases.....	64
5.9.2.1 <i>Selection Bias</i> .....	64
5.9.2 Information Bias.....	65
5.9.2.1 <i>Recall bias</i> .....	66
5.9.2.2 <i>Interviewers bias</i> .....	66
5.9.3 Validity and reliability of study.....	66
5.9.3.1 <i>External validity</i> .....	67
<b>CHAPTER 6: CONCLUSION AND RECOMMENDATIONS.....</b>	<b>68</b>
<b>6.1 Study conclusions.....</b>	<b>68</b>
<b>6.2 Recommendations.....</b>	<b>69</b>
 References.....	70
<b>Appendices</b>	
Appendix 1: Map of Nepal and study area.....	74
Appendix 2: Informed consent for Survey.....	75
Appendix 3: Informed consent for FDGs.....	76
Appendix 4: Survey questionnaire.....	77
Appendix 5: Focus Group Guidelines.....	81
Appendix 6: Checklist for Pre-test.....	82

---

## Abstract

**Background:** Available evidences show that Nepal has now entered into a concentrated HIV epidemic phase, as HIV prevalence is found above 5% among CSWs, IDUs. Studies show that mobility is one of the factors behind wide spread of HIV in African countries. This study was conducted in a remote mountain district “Mustang”, bordered with Tibet of China. People here are mainly Buddhists and socio-culturally near to Tibetan culture. As a survival strategy, inhabitants of this district were involved in Trans-Himalaya salt trade in the past. Now a day’s mobility to other part of country and India documented and observed. Some unique cultural practices like polyandry marriage, the headman system and celibacy system (a tradition of the second born to remain unmarried) still exist there.

**Objectives:** To assess the vulnerability of mobile people to STDs/HIV/AIDS by comparing risk exposure, condom use and treatment seeking behavior between the mobile and non-mobile group. To define possibilities for involving the indigenous headman system for prevention and control of STDs/HIV/AIDS.

**Methods:** A cross-sectional survey was conducted in a random sample of 255 adult Nepali, where the mobile respondents and non-mobile respondents were 153 and 102, respectively. The survey questionnaire included behaviour related questions from the Behavioural Surveillance Survey package (FHI) and additional migration related questions. We did face to face interviewing with illiterates and used self-filling questionnaire with literates. Qualitative data were collected by Focus Group Discussion and focussed interviews.

**Results:** The median age for the mobile and non-mobile group was 31 (SD 9.2) and 33 (SD 10.3) years respectively. There were significantly, more men, higher educated and unmarried in the mobile group. The self-reported STDs were significantly higher among mobile group 30 (20%) vs. 8(8%), respectively, ( $P = 0.01$ ). Out of a total 176 sexually exposed to, 30 (29%) of the mobile group had more than one sex partners while there were 11 (15%) in the non-mobile group ( $p= 0.036$ ). Eleven (7%) mobile people had visited commercial sex workers, but none in the non-mobile group. Consistent condom use with non-regular partner was as low as 1% with both groups. Nearly a quarter did not seek care for their reported STDs problem. Though 70% seek care from health institutions, visiting multiple sources was found. The headman system was identified as having well established, positive norms, already pursuing community development activities and showing a willingness to take part in STDs/HIV/AIDS control.

**Conclusions:** Our findings support the study hypothesis that the mobile group have a higher risk for STDs/HIV/AIDDS compared with the non-mobile group. Consequently Nepal should expand STDs/HIV/AIDS prevention programmes to cover the so-called “mountain belt population”.



Indigenous resources like the “headman system” could be tapped into for the prevention and control of STDs/HIV/AIDS.

## Glossary of Terms

---

Dhaba/Jhuma	:	second son or daughters who remain unmarried and are staying in Gumba
Gumba	:	religious place for worship among Buddhist
Jutho	:	any food touched by a used knife or spoon or fingers or lips. Any food into which spittle has fallen
Mukhiya	:	an informal leader selected by rotation, plays important role for maintenance of social system
Polyandry	:	practice of marrying a girl among brothers of one family
Ward	:	smallest administrative unit, every VDC divided into 9 wards
Nhelu	:	child born out of wedlock, generally brought up in maternal home. No social stigma found in this mountain community
Non-regular	:	any person other than spouse partner
Reference Period	:	past 12 months
Aamchi	:	traditional herbal healer in Himalayan region who provides treatment based on Tibetan tradition
Core group	:	included are commercial sex workers and Intravenous drug users

## List of Tables

	<u>Page No</u>
Table 1: Prevalence of STDs/HIV by migratory status in previous studies, Nepal	13
Table 2: Mobile and non-mobile group by socio-demographic characteristics	34
Table 3: Mobile and non-mobile group by number of sexual partners in relation to Socio-demographic characteristics, Mustang district, 2003	36
Table 4: Mobile & non-mobile group by types of sexual partners involved with, Mustang district, 2003	37
Table 5: Mobile and non-mobile group by condom use in relation to Socio-demographic characteristics, Mustang district, 2003	39
Table 6: Mobile and non-mobile group by condom use among different sexual Partners, Mustang, 2003	39
Table 7: Mobile and non-mobile group by reasons for not using condom Mustang, 2003	40
Table 8: Mobile and non-mobile group by current self reported STDs in relation to Socio-demographic characteristics, Mustang district, 2003	41
Table 9: Descriptions of current self-reported STDs symptoms by mobility status & gender, Mustang district, 2003	43
Table 10: Mobile and non-mobile group by response taken for self-reported STDs, Mustang District, 2003	44
Table 11: Mobile and non-mobile group by time delay for care sought for current Self-reported STDs, Mustang district, 2003	45
Table 12: Mobile and non-mobile group by source of care sought for self-reported STDs Mustang district, 2003	46
Table 13: Self-reported STDs association with mobility related variables, Mustang district, 2003	47
Table 14: Gender wise distribution of Self-reported STDs among migrants with respect to mobility related variables, Mustang district, 2003	48

## List of Charts

---

	<u>Page No</u>
Figure 1: HIV prevalence among adults in South Asia, 2002	11
Figure 2: Distribution of RTI/STDs by months, Mustang district, 2001 – 2002	14
Figure 3: Determinant factors for rate of transmission of STIs	15
Figure 4: Diagrammatic presentation on study subjects selection	25
Figure 5: Mobile & non-mobile group by pattern of condom use, Mustang, 2003	38
Figure 6: Mobile and non-mobile group by current self-reported STDs in past 12 months and lifetime, Mustang district, 2003	41
Figure 7: Mobile and non-mobile group by number of current self-reported STDs in relation to type of sexual partner	42

## Abbreviations

---

AIDS	-	Acquired Immunodeficiency Syndrome
CSWs	-	Commercial Sex Workers
DALY	-	Disability Adjusted Life Years
DDC	-	District Development Committee
FCHV	-	Female Community Health Volunteers
FHI	-	Family Health International
FGD	-	Focus Group Discussion
GDP	-	Gross Domestic Production
HAART	-	Highly Active Anti Retro viral Therapy
HIV	-	Human Immunodeficiency Virus
IDUs	-	Intra-venous Drugs Users
LM	-	Lower Mustang
MSM	-	Male having sex with Male
NGO	-	Non-Governmental Organization
NRP	-	Non Regular Partner
NS	-	Non significant
RTI	-	Reproductive Tract Infections
SAARC	-	South Asian Association for Regional Co-operation
STDs	-	Sexually Transmitted Diseases
STIs	-	Sexually Transmitted Infections
UM	-	Upper Mustang
VDC	-	Village Development Committee
VHW	-	Village Health Worker

# CHAPTER 1: INTRODUCTION

---

## 1.1 Background

In 1980-81, a rare type of immune deficiency syndrome was noticed among young, gay patients in Los Angeles. Later this disease was defined as AIDS in 1982[1]. Within the two decades HIV/AIDS has crossed every continent and become a pandemic disease [2]. In the hard-hit countries of Africa, this selective wipe out of the most productive age group made a devastating impact on every aspect of society [2-4]. WHO identified HIV/AIDS as a global threat for the development and declared HIV as a global emergency [5].

Estimated 40 million people are living with HIV/AIDS, globally. It has decimated 28 million people up to now; among them 3 millions deaths occurred in 2003 only, and additional 5 million people were newly infected during the same year. Underdeveloped countries share 95% of the global HIV burden. Epidemiological trends show that HIV/AIDS is now spreading at a faster pace in Asia and the Pacific region [6-7]. A marked variation in HIV disease epidemiology has been observed. For example in developed countries homo-sexual men are found to be infected most. In resource poor countries like Africa and Asia, heterosexual transmission is identified as the major route of transmission [2-3]. It is stated that poverty and human mobility in the context of gender inequality, poor health services delivery system, lack of employment opportunities and worsening security situation fuelled the HIV transmission in poor countries [7-9].

The United Nations general assembly, declared the millennium goal and targets as follows to halt and begin to reverse the spread of HIV/AIDS by 2015 [2] ;

- 25% reduction in the rate of HIV infection among young people in the most affected countries by 2005 and globally by 2010
- “Development and implementation of HIV/AIDS prevention programs for mobile workers and migrant people with provision of information and social services by 2005”.

In Nepal, the first HIV case was identified in 1988. Available evidence show that Nepal has now entered into a concentrated epidemic phase, as the HIV prevalence has reached more than 5% among core groups [10-11]. These study findings could be used for the formulation of community based intervention programs in the Mustang district of Nepal.

## **1.2 Research Questions**

This research tried to answer following questions:

1. Are the mobile people of Mustang district involved in risky sexual behavior?
2. Does risk behavior place them in high risk of being infected with STDs/HIV?
3. How does the indigenous headman system work?
4. Is it possible to mobilize the headman system in prevention and control of STDs/HIV?

### **1.2.2 Hypothesis**

Mobile people have more risky sexual behavior than those that are non-mobile. This places them at a higher risk for STDs/HIV/AIDS than the non-mobile people.

### **1.2.3 Objectives**

To assess the vulnerability of mobile people to STDs/HIV/AIDS by comparing risk exposure, condom use and treatment seeking behavior between the mobile and non-mobile group. To define possibilities for involving the indigenous headman system for prevention & control of STDs/HIV/AIDS.

### **1.2.4 Specific Objectives**

1. To compare the number of partners and type of partners between mobile and non-mobile groups.
2. To compare the use of condom in last sexual contact and the consistency of condom use with non-regular partner between mobile and non-mobile groups.
3. To compare self-reported STDs between mobile and non-mobile groups.
4. To compare cure seeking behavior of mobile and non-mobile groups;
  - 4.1 Types of response taken
  - 4.2 Time delay for seeking cure
  - 4.3 Sources of cure sought

## **|1.3 Research Need**

### **1.3.1 Justification**

Various studies have shown that migration is a risk factor for transmission of STDs/HIV. The dynamics of transmission is that mobile people engage in highly risky sexual behavior, become infected then they transmit the STDs to their sexual partner back home [12-14]. In this way, the microbes/virus spread to virgin communities. The experiences of Thailand show that spread of HIV could be checked and such a trend could be reversed by the effective prevention programs [15]. For the prevention of HIV epidemic in future, study on determinant factors of STDs transmission among mobile population is a must.

The disparities of the STDs/HIV/AIDS burden between countries and within a country show the differences in social, cultural and economic conditions and also the unequal opportunity for accesses to health care services [3, 8-9]. In the context of the concentrated epidemic phase [10-11] in Nepal and existing mass scale mobility, studies on determinant factors and understanding indigenous social organization is of the utmost importance in order to devise community based interventions programs. But there are only a few studies on mobility and STDs/HIV done in Nepal yet, that. Those previous studies were done among the hill people, mainly Hindus [16-18]. However, Nepal is a multi-ethnic country [19] and the Mustang district is unique in itself. Mustangeses are of Tibetan origin and practices Buddhism. They have unique cultural practice of “polyandry marriage” [20] & celibacy system called “Jhuma and Dhawa” in local term [21]. In the past they relied on the Trans-Himalayan salt trade with Tibet for survivals [21-22]. The age old salt trade was terminated in 1952 when Tibet taken by China, they were forced to migrate to different parts of Nepal, India during winter to search for the alternative source of income [21, 23].

Tuberculosis becomes one of the emerging diseases with spreading of HIV/AIDS. In Mustang district a total of 17 new TB cases were passively detected in 2000–2001 that is actually more than twice of the estimated Annual rate of infections (7 cases) of TB for the district [24]. Based on DHO, HMIS report, the incidence rate of STDs was found as high as 4 cases per thousand adults in 2001-2002. For the early phase of STDs, Wasserheit and Aral recommended that epidemic interventions should be focused on high risk groups and mobile groups who are at risk for both contracting it themselves and could act as bridging by transmitting to low risk group[26]. So this study compared three determinant factors of STDs transmission between

mobile and non-mobile group of Mustang district in order to assess the vulnerability of the mobile population to STDs/HIV.

### **1.3.2 Personal experiences**

I was motivated to choose this topic for study due to my experiences as Public health personnel in the Ministry of Health, Nepal since 1997. In my practical experience, women generally want to talk with me in privacy concerning pregnancy or STDs related symptoms.

I was posted in Mustang district in 1999 as a public health officer. During my stay there, I found that the district is almost lack of young people in winter. The health institutions along the governmental line agencies in Upper Mustang usually closed during winter. In this district during winter season (from August to February) almost all of the able bodied people went out, for trading so only old and few children remained in villages. So in these northern Himalayan districts National programs like Mass Polio immunization campaign is conducted during summer instead of December. In the context I often used to question myself are the mobile people at the higher risk of contracting STDs/HIV?

## **1.4 Country Profile of Nepal**

### **1.4.1 Geography**

The kingdom of Nepal lies in the South Asia region and has the total land area of 147181 Sq. Km. Nepal is a landlocked country. There is a shared bordered with China to the north and is surrounded by India from east, south and west. The altitude of land increases from 60 mts. at sea level in the south side to as high as 8,848 Mts. in the north, the height of Mount Everest. Similarly, the climate varies greatly from tropical in south, subtropical in midlands to alpine in the northern part. Geographically, the country is divided into three ecological regions: mountain, hill and plain. Each region has a distinct environment, ethnic composition, culture and economy. Administratively the country is divided into five development regions (Eastern, Central, Western, Mid-western and Far western regions) and 75 districts. Village Developments Committees (VDCs) and Municipalities are the lower administrative units [19].



### **1.4.2 Population and demographic characteristics**

The population of Nepal increased from 15 million in 1981 to 23.1 million in the latest census held in 2001 and the population density has reached 157 people per sq Km. Nepal's population can be termed as young population since 47.2% of the population is between 15 to 49 years old. The total fertility rate is 4.1 per woman. Geographically most of the population is concentrated in the plains (48%) and least in the mountains (7.3%). The annual population growth rate is 2.2 percent. Nearly 90% of the population is living in rural areas and 40% of them fall below poverty line. Nepal is a country of diversity as there are about sixty different ethnic groups, who speak seventy different languages and dialects with distinct culture. Majority (72%) of the population are Hindus which is the state religion followed by Buddhists (10.7 %) [19].

### **1.4.3 Health and Development status**

Nepal ranked 142 out of 172 countries in human Development index [27]. The crude birth rate per 1000 was 32.5 and crude birth rate was 9.3 per 1000 is one of the highest in SAARC region. Life expectancy rate at birth is 59.7 years. The maternal mortality rate is as high as 539 per one hundred thousand. Only 14.3% of pregnant women visited recommended 4 times Ante natal checkups Deliveries conducted by skilled attendance are only 12.7%. These figures show the poor accessibility to health care services by the Nepalese women [24].

### **1.4.4 Economy**

Agricultural is the main contributor (51%) to the national economy. Another increasingly important source of revenue is the remittance earned by migrants working within and outside the country that approximately contributed 13 to 25% of the national GDP. Actually, remittances become a means to keep the foreign currency in balance even when there is a trade deficit as indicated by 25% import vs. 10% export. Agricultural products and handicrafts are the major exportable goods, while manufactured goods, machinery & drugs are the main import goods [28].

#### **1.4.5 Health Services delivery system**

The Health care delivery system in Nepal is composed of primary, secondary and tertiary levels. District Health Office (DHO), which represents the primary Health care Institution, is the manager and provider of preventive and curative health services in the district. The DHO is composed of a district hospital generally based in the district Head quarter, periphery level Primary Health Centers, Health Posts and Sub Health Posts and a cadre of volunteers that provide health services at community level. There are a total of 62,548 Female Community Health Volunteers (FCHVs) working at community level. The Regional Health directorate and Regional Hospital are the secondary level Health care Institutions. The tertiary level Institutions are Department of Health and other specialized Hospitals. Each higher-level health care institution is envisaged to supervise, monitor and train the respective lower levels institutions. In the same way, lower level health institutions act as referral services for ensuring optimum care. There are 89 hospitals but the number of skilled manpower like doctors and nurses under Government employment are only 5415 and 7803 respectively [19, 24].

The National Center for AIDS & Sexually Transmitted Diseases Control (NCASC), established in 1987, is the leading agency for prevention and control of sexually transmitted diseases and HIV/AIDS in Nepal. According to the comprehensive reproductive health care concept, care for RTI/STD/HIV/AIDS is integrated within the reproductive health services package. The National policy for HIV control was adopted in 1995 and the National HIV/AIDS strategy for 2002 to 2006 was also endorsed in 2001. The migrant population is identified as one of the vulnerable groups [24]. Anti Retro-viral Treatment is introduced in February 2004. The program for Prevention of mother to child transmission of HIV started in the central level maternity hospital in Kathmandu. The Ministry of Health aimed to expand ARV services to the regional and Zonal hospitals in a phased wise manner [29]. For multi-sectoral co-ordination, the national AIDS Co-ordination committee was formed under the chairmanship of the Prime Minister. Regional and District level HIV/AIDS co-ordination committees are also organized [24]. The South Asian Association for Regional Co- operation's meeting in Islamabad declared "SAARC Awareness Year for TB and HIV/AIDS 2004", and signed a memorandum with UNAIDS for scaling up HIV care, treatment and prevention services [30].

### 1.5 Study Area Mustang District

Mustang district is one of the 16 remote mountainous districts of Nepal. It is bordered by Tibet, the autonomous region of China, in North (See Appendix 1) and lies in the Western development region. The total area of this district is 3 62 516 hectares. The altitude ranges from 1372 meters in south up to 8167 meters in the north. Land is full of peaks and valleys. The soil is grey and fantastically eroded because a strong wind blows all the time. The climate is of the cold desert type with little rainfall while the snow covers it for nearly six months [19, 21, 31].



Scenery of study VDC Kagbeni from the nearby hill-top

Politically this district is divided into 16 Village development committees (VDC). The total population of the district is 14 981 according to the 2001 census and is projected to be 20 192 by 2011. There are 2 576 households in this district with an average household size of 5.4 persons. Gurungs are the majority (54%) caste, followed by Bista, Thakali and other minorities. The majority of the population (59.4%) speaks Tibetan Gurung language and Buddhism is the main religion. Dharjyang, Lhosar, Yartung, Sakadhowa are the major festivals [21].

More than half (61%) of the population is literate, which is better than the national average (45%). The literacy rate is found to be better among males (67%) than females (55%). Though school enrolment is very high (80%) and even higher for girls (85%), only 11% complete primary level education. Higher enrolment of girls is due to the tendency of sending boys to

better schools outside of the district. Women occupied Twenty-six percent of the local governance seat, which is better than national average. Piped water supply covered 89% of the population, which is better than the national average of 68% but only 37% have access to a sanitary facility. There are no roads navigable by vehicle. There is only one airport in district at the district head quarter, Jomsom. There are altogether 22 district level government line agencies. The Participatory District Development Program (PDDP) is also launched in this district. Non-governmental organizations namely Annapurna Conservation Area Project, (ACAP) and Mustang Development Services Association (MDSA) are functioning in this district [21].

Only 1.1 % of the land is cultivable. It is a food deficit district. Only 56 % of the population has sufficient food for only three to nine months (DDC; PDDP resource center). People adopted multiple economic activities like agriculture, animal husbandry, herbs collection, selling of household produce, fruits and engaging in seasonal trade. Recently, MDSA and ACAP encouraged apricot and apple farming. The yield is good and highly sought for in the domestic and international market but transporting the product is the main problem. This district is endowed with natural beauty. There are many archaeological sites dating back to the old civilization of Nepal. Tourism is a booming industry here, a total of 13,048 tourist visited Mustang in 1998. The majority of them were American, British and Australian. This community is famous for tourism business and all together there are 152 hotels/lodges in operation [21].

The District Health Office is comprised of one 15-bedded hospital, one Primary Health Centre, seven Health Posts, and seven Sub-health Posts. Two NGO organized hospital is also providing health services in this district. Considering that there is one doctor in district hospital and one in Army barracks, the Doctor\Population ratio is 1: 7490. There are all together 20 traditional healers called “Aamchis”, [21] in local term providing herbal-based treatment. At community level 144 FCHVs are working [31]. Available health indicators show poor but a slightly improved health situation of Mustang district. The infant mortality rate is 32 and the crude birth rate is 34.4 per thousand respectively. The health services delivery indicator shows that 67% of pregnant women visited ANC check at least once while only 2.5% have completed recommended four-time ANC checkups. Among ANC visitors, 19 % were women under 20 years’ old. The Tetanus Toxoid coverage was 23%. Only 9.7% of the deliveries were conducted

by health personnel. The contraceptive prevalence rate was 40%. Acute respiratory infections, worms' infestations, gastritis, pyrexia are the major health problems [24, 31].

Some unique socio-cultural practices like the "*headman system*" which means that there is an appointed leader in the village (for more detail see topic 4.8) [21] is still functioning here. Another practice is the "*fraternal polyandry marriage*" which is still functioning in this district. The indigenous headman and community fund system made people survive even in the difficult ecological condition. Polyandry marriage is more common in upper part of mustang district. Altogether 135 households reported such marital union, the highest percentage (27%) was found in Chhoser VDC [20].

Mustang district is often referred to as upper and lower Mustang. There are six VDCs in upper Mustang: Ghami, Charang, Chhusang, Surkhang, Chhonup and Lhomangthan while the rest of the 10 VDCs lie in lower Mustang. Upper Mustang is comparatively more inaccessible due to high mountains [31]. Poverty mapping done in 1997 found that the poorest VDCs are in upper Mustang and some of the poorest of the poor are found in Chharang, Chhonup, Chhoser and Surkhang, where nearly 90% of population were living below poverty line [32]. The majority of inhabitants are Gurung, Bista and Thakuri. They are by religion and costume quite near to Tibetan culture [31]. In lower Mustang, Thakali are the predominant group. Both study VDCs lie in lower Mustang. The total population of Kagbeni VDC is 1224 (males 629 and 595 females) comprising 216 households. It is taken as representative of lower Mustang. Jhong VDC was selected for representing upper Mustang. The total population of Jhong VDC was 584, among (311 male and female 273) and there were a total of 91 households [21].

## CHAPTER 2: LITERATURE REVIEW

---

### 2.1 Sexually Transmitted Diseases

Sexually Transmitted Diseases (STDs) are a group of infectious diseases, mainly transmitted by sexual contact. Out of nearly 25 different causative agents, bacterial STDs: gonorrhoea, chancroids, and Chlamydia are treatable [33]. As for the Viral STDs: HIV/AIDS, treatment is not available. The STDs and HIV/AIDS impact at individual and institutional level is great. STDs cause acute as well as long-term complications and sequelae, infertility, foetal wastage, ectopic pregnancy, anogenital cancer, premature death and neonatal\infant infections are some of the diseases [34]. A study done in Malawi found that HIV virus concentration was eight times higher in semen from HIV positive men with urethritis than in HIV positive men without urethritis [35]. It is estimated that an infection with curable STDs increases risk of transmission and acquisition of HIV by up to ten times [36]. So infection with STDs can be taken as a marker of risk for HIV infection, since the major route of transmission is the same.

#### 2.1.1 Global burden of STDs/HIV/AIDS

The highest burden of curable STDs and HIV/AIDS is shared by the poorest countries of the world. WHO had estimated in 1999 that a total of 340 million people were newly infected with four STDs. Out of this 12 million with syphilis, 92 million with Chlamydia, 62 million with gonorrhoea and the highest number of 174 million with trichomoniasis. It was estimated that a total of 150 million cases occurred in Sub-Saharan Africa and 65 million in south and Southeast Asia [9]. Similarly, the HIV prevalence among adults is 0.1% among developed countries, whereas 7.5% to 8.5% in worst hit areas of Africa. African countries occupied 70 % (28.5 million) of the global HIV burden. The situation is not much changed from 2002 to 2003. It is estimated that every day 14 000 individuals become infected with HIV with almost all cases occurring in low-income countries. The majority (86%) of them are adults [6-7].

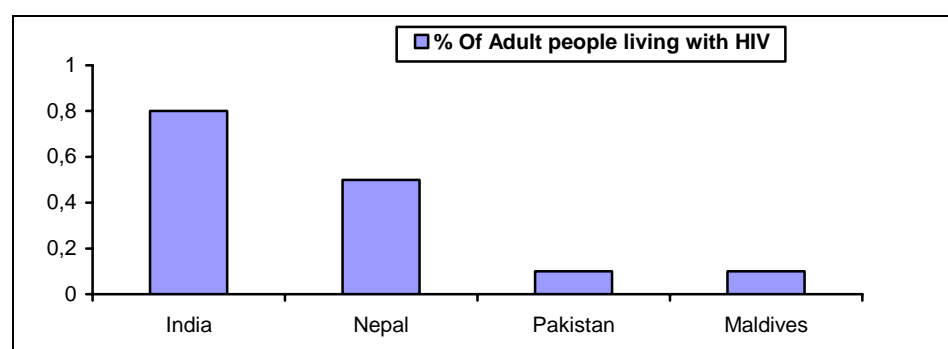
The economic and social cost of HIV/AIDS is immense. STDs related complications are the fifth major cause for seeking care when it comes to adults for seeking care. Among young women, STDs is the second major cause of healthy life year's loss [33]. HIV becomes the main killer of adults in their prime productive age. Still more, HIV/AIDS is the leading cause of DALYs by 7.4% in adult males. Among adult females, HIV is the second greatest cause of

DALYs (7.2%) after unipolar depressive disorders. In the highly HIV affected countries of Africa like Botswana and Zimbabwe, an estimated decrease in life expectancy by 40 years in [2-4], also now nearly half of deaths among adult people is due to HIV/AIDS [2, 8]. These countries experienced a 2 to 4% drop in GDP. In addition an estimated 14 million children become orphans, out of them 11 million live in Africa [37].

### 2.1.2 HIV situation in South Asia

It is estimated that 7.4 million HIV positive people live in South Asia [38]. The first HIV case in this region was identified in 1981 in Thailand. With effective HIV/AIDS control strategies, Thailand succeeded in reducing the number of HIV cases from 140,000 in 1991 to 21,000 in 2003 [15]. In SAARC countries, India was the first country with cases of identified HIV back in 1986. According to a 2001 estimate, India has the highest estimated adult HIV prevalence rate in SAARC region (0.8%) [2]. Surveillance data found that more than 1% of the HIV prevalence was among ANC visiting women in Southern states, namely Assam, Maharastra, Tamil Nadu, Andhra Pradesh and Nagaland [39].

Figure1: HIV prevalence among adults in South Asia, 2002



Note: < 0.1 % prevalence in Sri Lanka, Bangladesh and Bhutan

### 2.2.3 STDs/HIV situation in Nepal

There is a lack of data on national prevalence of STDs in Nepal. Department of Health Annual Report 2000 shows a prevalence of 0.11% for the three diseases namely STDs/RTI and HIV [24]. As the data was based on service delivery and inherent stigma, we can assume great under-reporting. NCASC reported there was a total of 3 765 HIV cases. Out of this, 747 were full blown AIDS cases and 205 of these died of AIDS as of May 31, 2004. Heterosexual

transmission is the major route of transmission. The gender wise distribution of the reported cases revealed that the majority (73%) were males: among them 77 % cases were male clients of Commercial Sex Workers (CSWs) while CSWs comprised 51 % of the disease burden among females and 14% of the total HIV burden and 11% percent were housewives. Age - wise distribution shows that the highest number (81%) of HIV positives belongs to 20 to 39 years age group while those under less than 9 years age group comprised less than 2 % [11]. Since the data was based on eight sentinel surveillance sites and voluntary confidential testing, there is a high chance of under-reporting.

WHO/UNAIDS estimated that there were 58,000 people living with HIV/AIDS in Nepal at the end of 2001. Among these 56000 are adults and the rest are children. The estimated prevalence rate among adults is 0.5% which is the second highest in the SAARC region after India (see figure 2) [2]. HIV surveillance data shows that the HIV prevalence among sex workers in Kathmandu increased from 8% in 1997 to 36.2 % in 1999. Among drug users in Kathmandu, half of them were found to be HIV positive [25].

#### **2.2.4 Migration and STI\HIV\AIDS risk in Nepal**

Over the time from the census in 1952\1954 to the latest census data, it is seen that the volume of the absentee population increased over the period from merely 2.3 % of total population to 2.7 in 1981 and 3% in 2001[40]. It is found that up to 80% of households depend upon remittance sent by son or husband working from afar in the mountain and hills of western region in some rural areas. Though India is still the main destination for the Nepalese migrants out of country, the proportion decreased from more than 90% during 1961 – 82 to about 77% in 2001 [40]. Other destinations are Gulf countries, Hongkong, Malasiya, Korea, Thailand, Japan, Germany, Canada, USA, UK and are involved mainly in blue collar jobs. It is estimated that more than 100,000 Nepali women are working as CSWs in numerous Indian cities such as Mumbai, Delhi, Lucknow, Varanasi, Agra, Kanpur, Madras and Banglore in risky conditions [28] and each year nearly 5 000 new women are lured into sex work in India [41]. A study done in Hong Kong found that 40 Nepali women were working as migrant labor [42]. A small-scale study done in Jhong VDC of Mustang district found that 48% of the population above 15 years population was involved in circular migration. The majority of migrants from Mustang principally went to the northern states of India namely Assam, Gwahati, Silgudhi, West Bengal



and Nagaland. The rest reportedly were involved in trade in Kathmandu and other parts of the country. It was reported that seven migrants were working in America, Korea, and Hong Kong [23].

News on HIV/AIDS infected youths who went abroad for making a livelihood has been appearing in newspapers in Nepal. There have been reports of all the family members (himself, wife and their two children) of a migrant male labor to India being infected with HIV [43]. There have also been reports of deaths of returning migrant workers from India as a result of HIV/AIDS infection. [44]. Owing to closeness and a special treaty with India, the actual magnitude of migration to and from Nepal is probably very high. But studies on migration and STD/HIV are very limited in Nepal. A few previous studies, done in this area show that the prevalence of HIV ranged from 0.3% to 3.4% and STDs from 7.8% to 19.4 % (Table 1). These studies are all from hill districts of Far and Mid-western region with study population mainly being Hindus.

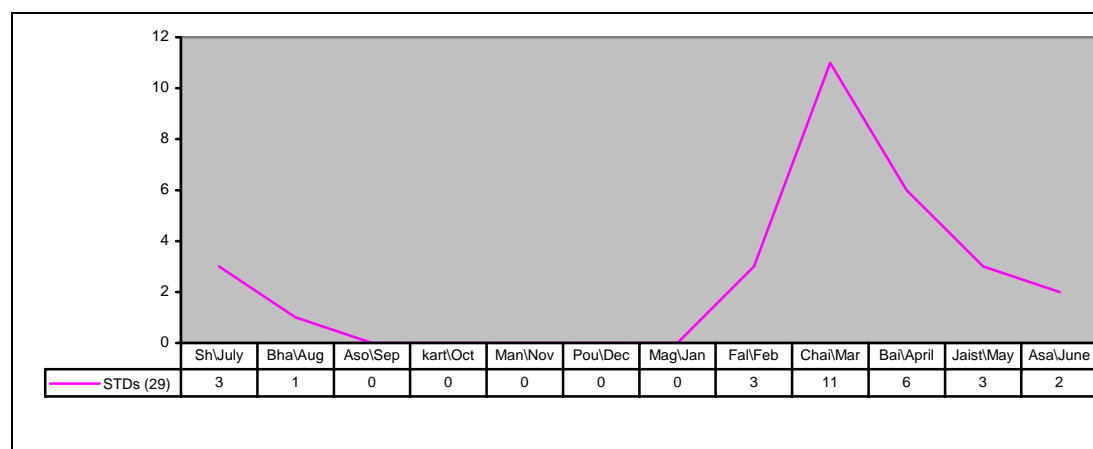
Table 1: Prevalence of STDs/HIV by migratory status in previous studies, Nepal

Study area	Sample size	Year	STDs		HIV		TOTAL		Study done by
			Migrant	Non-migrant	Migrant	Non-migrant	Any STDs	Only HIV	
1. Achham district	610 males	2002	19.4% (OMG)* 8% MG)*	8.9 %	3.7%(OMG) 3% (IMG)	0.7 %	79 (13%)	14 (2.3%)	New ERA, FHI [16].
2 .Kailali district	610 males	2002	7.8%(OMG)* 4.6% (IMG)*	4.6 %	0.6% (OMG)	0.0 %	43 (7%)	2 (0.3 %)	New ERA, FHI[17].
3. Dadheldh-ura district	303 male+ female	2002	11.3% (14)	7.4% (12)	0.7%		28 (9%)	1(0.3%)	Pkhkadze G, ILO; NCASC [18].

\*OMG = migration out of country, IMG = migration within Nepal, NMG = non-migrants

Based on the DHO Mustang, Health Management Information System (HMIS), STDs incidence rate was 3.5 and 4 cases per thousand adult populations per year for the FY 2000-2001 and 2001-2002 respectively. Out of the 29 reported STDs cases in 2001-2002, 62% (18) were males and rest females. Month wise distribution of STDs cases shows STDs pattern similar with migratory pattern (See figure 2) [45].

**Figure 2:** Distribution of RTI/STDs by months, Mustang district, 2001 – 2002



Source: DHO, Mustang

## 2.2 Theoretical perspectives

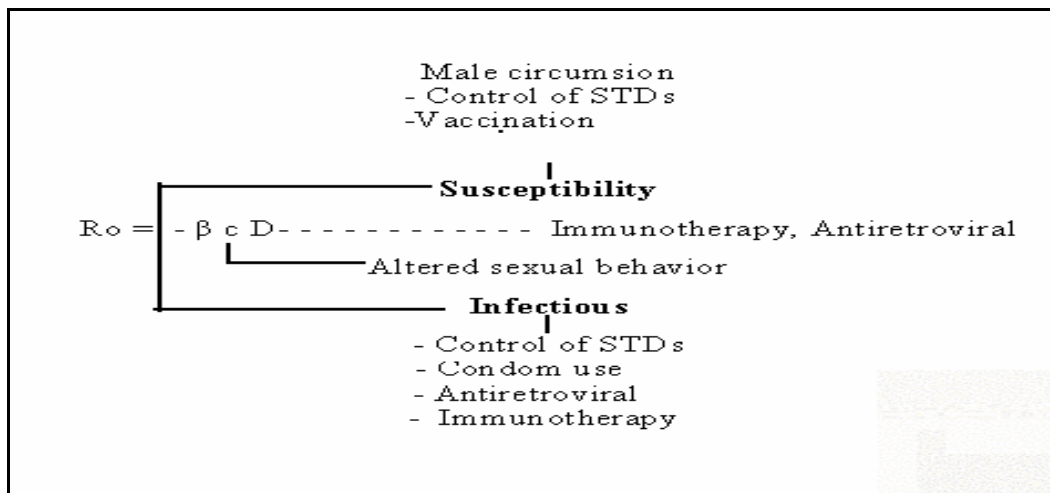
### 2.2.1 Migration Theory

Economic theory of migration has stated that migration is a “selective process”, an outcome of interactions of a set of pull and push factors, facilitated by development of transportation and communication [46]. It is estimated that 125 million people are living outside their original country. The UN has projected an increase of 2 million per year for the next 50 years [47].

### 2.2.2 Theories and models on STIs\HIV transmission

Anderson and May’s “core group theory” is one of the most important theories on transmission. This theory is based on the knowledge that knowing the mechanism of STDs transmission also makes apparent ways of preventing transmission. According to this theory the sexual network within the “core group” (CSWs, their clients, Male having sex with male, Intra-venous drugs users, STD infected, adolescents living in a high prevalence area) and their interaction with sub-groups maintain the spread of STDs in the general population. The rate of spread of transmission ( $R_0$ ) depends upon the combined product of the three principal determinant factors: sexual exposure\contact rate(C), efficiency of transmission (B) and duration of infectivity (D) [48].

**Figure 3:** Determinant factors for rate of transmission of STIs



According to Aral, Dynamics of transmission ( $\beta c D$ ) is the outcome of proximate determinants namely knowledge, risk behaviors, networks, substance use, commercial sex and care seeking. With a broader outlook on influencing factors, he stated that these proximate determinants factor is in turn shaped and influenced by underlying factors of inequalities. This is a result of global societal change and poverty. According to him globalization, increased the size of core group(C), the increase in duration of infectiousness by disrupting health care system. Due to increasing poverty there is an increase in interaction between core group and general population and across the local boundaries [49].

KK Holmes model shows the interaction of ecological, microbial and behavioral factors in the transmission of STDs. He stated that exposure to STD is an outcome of risk behavior and in a given exposure; ones probability of transmission is influenced by other factors as well. For example ecological factors like accessibility of health care services, quality of services and the utilization of health care services. So a person's probability of being infected with STDs/HIV depends upon space from where one chooses the partner, the frequency of partner change and probability of transmission. At population level, the prevalence of STDs depends upon Rate of Transmission of STDs, prevalence and incidence of STDs [50].

According to “the dynamic typology theory” of Wasserheit and Aral, epidemic is an outcome of the interplay of pathogens, the behavior of a sub-population and the prevention efforts applied to control the disease. They emphasized on phase specific intervention for halting STDs/HIV transmission [26].

Treadwell LT stated that migration is a potential vehicle for spread of infectious diseases and drug resistance [51]. The Soskolne and Shatarkshall model shows migration as an outcome of socio-structural inequality. Those who migrate are often the deprived group in a society. Within this context, migration can further increase one's vulnerability by experiencing the loss of psycho-social support and stress which may lead a migrant to take high risk behavior and hence get infected. [52]. Herdt stated that migrants, being free from usual social control and monitoring, take up risky sexual behavior [53]. Loutan referred, migration as a process in which the health status of a migrant depends on the circumstances at every phase one passes through. Before departure, the health status of potential migrants depends upon the existing socio cultural, environmental and economic situation. Often religion and culture act as molding values and norms of an individual about sexual behavior. The transition phase is phase of uncertainty and insecurity. When reached to destination, migrant's health statuses depend upon lot of other co-like legal status, their educational status and professional and communication abilities. When they return their health status and community depend upon availability of health services in their place of origin [54].

Wolffers cited eight ways the migrants become vulnerable to HIV; may be exposed to higher risk of HIV, due to higher prevalence in place of destination, inability to get optimal quality & level of care, may be face discrimination, deprivation of social rights and services, even knowing risk unable to take safe behavior due to dependency and lack of political power [55].

## **2.3 Factors responsible for transmission of STIs/HIV**

### **2.3.1 Socio-demographic factors**

#### **2.3.1.1 Age**

Both STDs and HIV is disease mainly afflicting adults. It is estimated that out of 40 million HIV positives, 11.8 are in the 15 to 24 age groups and that every day an additional 6000 youths become infected with HIV. The factors found are early sexual initiation among youth, their lack of knowledge on transmission, misconceptions and that very few seek treatment for STD, when they got infected [56].

### ***2.3.1.2 Gender***

In general, reports show that higher proportions of males are being infected with STDs/HIV than females. But in Africa five to six girls of 15 to 19 years were infected per one boy of the same age [56]. Gender based power imbalances have been cited as a root cause for this which is facilitating rapid transmission of STDs among women since they lack power to negotiate for safer sex in one hand and are being hindered from treatment, care and support on the other hand. Traditionally, men have been seen as having uncontrollable sexual urges which put them in danger of STDs/HIV infection when they strive to maintain or attain to that perception [57]. A study done in a rural part of Mexico among wives of migrants found that women were unable to negotiate for condom use with husbands due to the social construction of sexuality and the notion of marital infidelity. [58]. Women are also biologically more vulnerable to STDs/HIV. Studies have shown that the risk of transmission is four times more among women than in men with regard to having unprotected sex. The estimated risk of acquiring HIV from a single heterosexual contact with an infected man for a women is between 1 per 1,000 to 1 per 100 sexual contacts, whereas women to men transmission is estimated to be twice to twenty times less likely than men to women [59].

### ***2.3.1.3 Marital status***

Marriages have been found to be an important factor in transmission of STDs/HIV. A study done on 126 HIV positive monogamously married women in India revealed that 100 (79%) of them had the husbands who were already HIV positive. The findings show that women are being infected by their only partner “the husband” [60]. It is generally observed that girls have early marriages and that is also considerable age differences between husband and wife especially in African and Asian countries [56].

### ***2.3.1.4 Educational attainment***

Studies show an association between STDs/HIV and educational level. A study done in Nepal among migrant males found that the highest prevalence (23.5%) of STIs including HIV was among illiterates, and the least among those who reported they had education level somewhere between 6<sup>th</sup> to 10<sup>th</sup> grades was 19.6% [17]. However, the association between education and risk factor shows bi-directional tendencies as well. A study done in Pakistan among truck drivers

found that the majority (41%), who reported to have had sex with CSWs had secondary level or higher education. The least 32.1% reported were illiterate. The highest reported condom use was (9.7%). Again among illiterate and among middle school were 7.8% and 8.7% respectively [61].

#### **2.3.1.5 Ethnicity**

Studies show that in America and elsewhere minority ethnic groups are disproportionately affected by HIV. A study done among Burmese Shan migrants in Northern Thailand found that the HIV prevalence rate was 4.9% in general, 5.7% among men vs. 3.8% among females, which is more than twice compared to other comparable groups [62].

### **2.3.2 Behavioural factors**

#### **2.3.2.1 Risky sexual behaviours (*exposure to risk*)**

The rate of contact and type of partner is one of the determinant factors for rate of transmission of STDs. Various studies show that STDs/HIV prevalence is associated with numbers and type of partners. A study done in Peru found that among the HIV positive pregnant women the mean number of sexual partners in the past 12 months was 1.1 compared to only 1.0 among the control group. Still more, visiting a female sex worker was associated with their HIV status (OR, 3.6). The male sexual partners of these HIV positive women reported in average more partners (1.6 vs. 1.1,  $P = 0.03$ ) than the controls in the same period [63]. Concurrency of sexual partners emerged as an important factor for transmission of STDs/HIV, especially in the earlier phase of STDs epidemic in less than 5% HIV prevalence among core group (CSWs, IDUs) settings [48-49]. But there are many practical constraints to get information on the concurrency of sexual partners.

#### **2.3.2.2 Condom use**

It is estimated that consistent condom users are 10 to 20 times less likely to be infected with HIV than non-condom users [64]. That means the chances of transmission are greatly reduced by condom use. However, condom's effectiveness on prevention of other STDs is questionable

since it covers only male genitals. In the case of syphilis and herpes sores, they could be on other parts of the body. A study done in Khutson, a southern African township, among adolescent and young people found that reasons for condom non-use were: perception of no risk of HIV, peer norms that condoms are only used for casual partners, unavailability of condoms, lack of money and ego of males as decision maker [65].

Besides the reasons stated above, condom use was found to be also affected by a context of risky sexual activity. An exploratory study done on north-eastern men in Thailand found that 50% of men who visited the brothels were married while 43% of them were not. It was also found that they had made those visits generally in a group with their friends and acquaintances and alcohol taking was common. This hampers the use of condoms. Again, unprotected sex often occurred during festivals in which sex with unknown persons in a hurry and in open places was common [66].

A study done among HIV positive women in Senegal found that the risk of HIV transmission is the highest during initial or late stage of HIV infection, correlated with the depletion of cd4+ cell counts [67].

#### ***2.3.2.3 Cure seeking behaviour***

Treatment of curable STDs prevents complications and reduces duration of infections. So delays in seeking cure and availability of cure are important aspects for the control of STIs/HIV transmission. A study based in a district STI clinic in Malawi found that the average delay for coming to clinic ranged from 2 days to 4 years (Mean = 14 days). It was found that before coming to STI clinics, the majority had sought cure from traditional healers (37%), private health facilities (21%), pharmacy/drug vendors (24%) and herbal treatments. A considerable number of people, slightly less than half (231), reported having sex during the symptomatic period. Out of them, only 5 (2%) used condoms consistently [69]. Pharmacy/drug vendors could be important source for treatment of STDs but the quality of their service need constant monitoring and supervision. A simulation study done in Nepal found that only nearly a quarter (24%) of pharmacy/drug shops dispensed the medication according to National STDs guideline. Almost half (43%) provided incorrect treatment and for nearly a quarter, medication was not provided [68].

Cure seeking behaviors as stated before is influenced by socio-ecological factors. A comparative study on high and low syphilis prevalence counties in the United States found that in lower syphilis prevalent counties, STD clinics was comparatively more accessible and provided services for all the five working days. There was prompt testing and syndrome-based treatment and confidentiality was assured. Other aspect like coordination with other non-health organizations like Churches was also found. In addition community accepted STIs clinic staffs, and the acceptability of discussing STDs was also found [69].

### **2.3.3 Microbial factors**

Transmission also depends upon type of microbes. For gonorrhea that has a short duration of infectiousness but high infectivity, the sexual behavior of the core group may be relatively more important for rate of transmission than with other STDs. In the case of HIV that has a long duration of infectiousness but low infectivity, the sexual behavior of the general population may be more important [50].

#### ***2.3.3.1 Signs and symptoms of Sexually Transmitted Diseases***

Discomfort in passing urine, swelling of testicles, dysuria, and pain during sex and urethral discharge, and genital ulcers are the signs and symptoms of STDs. WHO's Guideline for the management of Sexually Transmitted Infections stated two approaches of surveillance\case reporting: syndrome based and aetiology based. Syndrome based case reporting includes three definitions: genital ulcer syndrome, discharge and for women lower abdominal pain too. Urethral discharge, urethritis indicates an infection with gonorrhea and\or Chlamydia and ulcers\sores indicate infection with syphilis [70]. Syndrome based monitoring may be better for men but it's not that effective for women because about 70% of the total STIs may remain asymptomatic among women [36]. Secondly, due to the location, sores and ulcers are less likely to be recognized as pathogenic. This means that, among the infected, very few will report a history of STDs and seek cure. Furthermore, vaginal discharge and lower abdominal pain may be caused by other infections. Vesicular ulcers indicate an infection with genital herpes that may reoccur years after initial infection. Again, many cases of persistent genital warts may give recurrent symptoms [70].



## **2.4 Evidence from previous studies in mobility and STDs/HIV/AIDS**

Studies done in different settings show that mobility is a risk factor for transmission of STDs/HIV at the individual level as well as reason behind the spread of HIV. In a cross-sectional comparative study done among the migrant and non-migrant men and their partners in the gold-mines in south Africa, it was found that the HIV prevalence was 25.9% among migrant males whereas it was only 12.7% among non-migrants males ( $p = 0.029$ ) [71].

A cross-sectional study done in the capital of Cameroon found associations between mobility, risk behavior and HIV prevalence. It was revealed that unmarried men who were outside for more than 30 days reported more than one partner (64% vs. 16.9%) compared to non-absentees. Beside this, the HIV prevalence found was associated with the duration of mobility. The highest prevalence of HIV (7.6%) was among those who reported an absence of more than 30 days. It was 3.4% among those who were away for less than 30 days. The least prevalence (1.4%) of HIV was found among those who reported no absence. However, there were no significant differences in prevalence of HIV among mobile and non-mobile females. Furthermore, unmarried women reported less risky sexual behavior than men. In addition, unmarried women who were absent for more than 31 days reported they had multiple partners, indicating indulgence in commercial sex work [13].

In another comparative cross-sectional study done in three rural communities of West Africa, higher mobility found associated with higher risk behavior and the highest prevalence of HIV among the three villages. Furthermore, condom use was found highest, where mobility was the most (34% vs. 23% non-mobile) [12].

Available evidences shows that the rural to urban mobility of males heighten the risk of infecting their sexual partner back home. In Mexico, 21.3 % of rural women (who are wives or sex partners of migrants) are infected with HIV while only 14.4 % of women who live in urban areas were found infected [14].

Gender based vulnerability among women migrants and discrimination of migrants' in health care were found in a study done in Hong Kong. It was found that nearly a quarter (24%) of women reported having used condoms in their last sexual act and a considerable percentage

(9%) of migrant women reported that they had experienced sexual violence. These women perceived themselves as being at risk for contracting HIV [42]. In a study done among Bangladeshi migrants, the special vulnerability of women migrants was also explored. Due to low salaries, women are compelled to engage in temporary relationships while abroad and maybe discouraged from demanding condoms [72]. Due to the high cost of HAART, the toxic side effects and the risk of resistance, prevention of HIV is 28 times more cost effective [73]. Further more, it is estimated (Over & Piot) that protection of hundred initial gonorrhea cases in non-core group now would prevent 426 future cases of gonorrhea in coming ten years period [9].

## **2.5 Community mobilization for prevention and Control of STDs/HIV**

Studies show that traditional organizations act as disciplinary institution. For example, In Oromia tribe of Kereyu & Bornea, where indigenous traditional democratic constitutions “SERA GADA” still functional, there weren’t any cases of rape and abduction. [74]. It was found that tribal chiefs in Africa had decided to ban traditional sexual cleansing practice and prescribe other ritual in replacement [75]. In Africa, community based organizations have been mobilized to supply additional home care for sick and repair home of the AIDS affected families [76].

## CHAPTER 3: METHODS & MATERIALS

---

This study was a concurrent mixed methods study. We employed survey method to collect quantitative data and Focus Group Discussion (FGD) and Focused structured Interviews to collect qualitative data. The survey questionnaire was administered among randomly selected 15 to 49 years inhabitants of Kagbeni and Jhong VDC in Mustang district of Nepal. Qualitative data was collected from key informants and male mobile people. The total period of data collection was 2 months and 22 days (July 11 to October 1, 2003).

### 3.1 Study design

This was a cross-sectional and community based study.

### 3.2 Source population

A two tier method was employed for sampling. Firstly, two VDCs Jhong and Kagbeni were purposely selected as representative of the whole of Mustang district on the basis of the following features: (See Map in Appendix 1)

<u>Jhong</u>	<u>Kagbeni</u>
1. A LM VDC adjacent to UM with many characteristics similar of UM	1. Lies between Lower & upper Mustang
2. 12th poorest VDC out of total VDCs	2. Third least poor VDC
3. Predominance of Tibetan origin Gurung	3. Predominance of Thakalis
4. Tourist restricted area	4. Main trekking/tourist route
5. During Salt Era, people brought salt from Tibet and exchanged with other Commodities in LM	5. During salt era, it was a stockist & seller of salt

### **3.2.1. Study population**

Inclusion and exclusion criteria: a sample frame was derived from the Village Health Worker House Visit register. A total of 17 wards were included in this study, except ward no1. Because it takes 8-10 hours to reach by foot and only 10 households were there. The sample frame was prepared by listing the households and all the family members with name and age. From this list males and females, aged 15 to 49 years were listed out. Only those who resided in the study VDCs were included in the list. People from other places or without own house was excluded irrespective of their length of stay. There were altogether 683 eligible subjects, (Fig. 4) who remained on the list after deducting 274 subjects who were outside of Nepal during the study period.

## **3.3. Sampling**

### **3.3.1 Sample Size**

The sample size was calculated by using this formula:  $N = 4 \times P(1-P) / a^2$  [77]

Where,

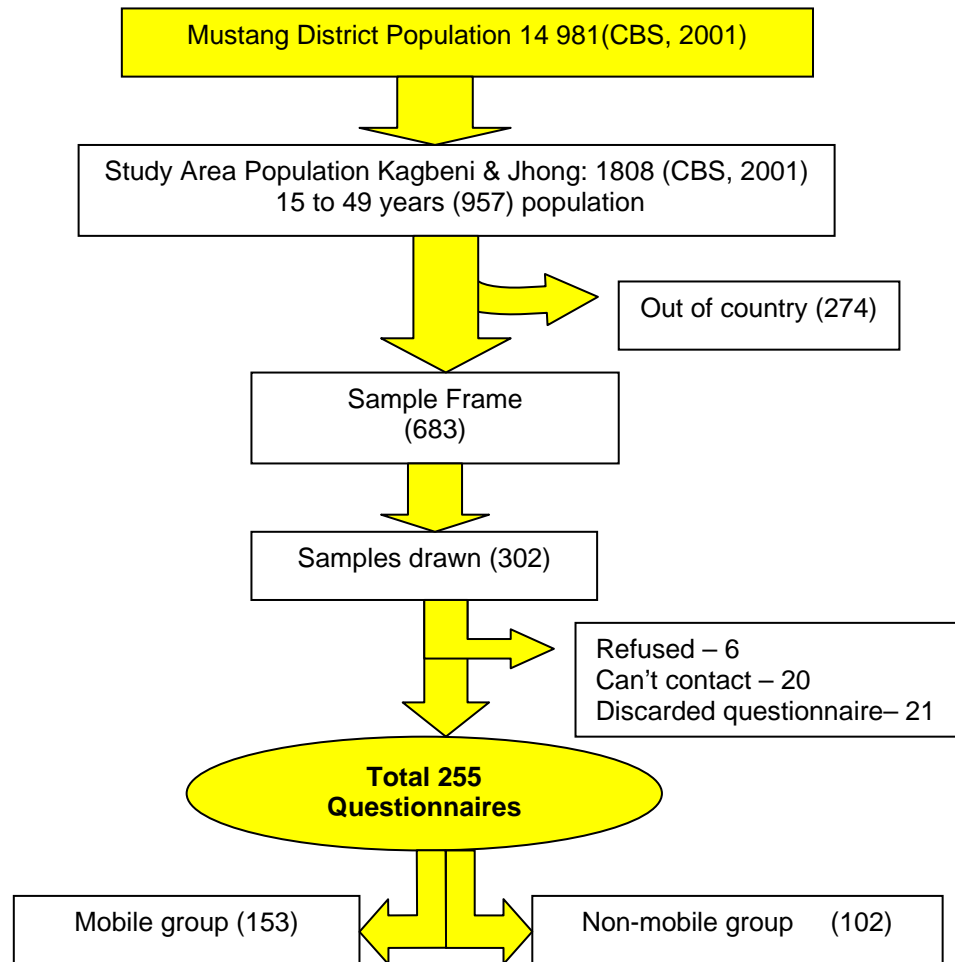
N = sample size,

P = 10% (25)

a = margin of sample error tolerated (5%)

The required sample size was calculated for power of 80% at 95% confidence level. With an estimated 10% HIV prevalence among migrant, 144 people were needed for the mobile group. It was a comparative study, so an equal number of people (144) were taken for inclusion in the non-mobile group. Thus there were a total of 288 study subjects and after adding 5% to make up for possible losses of subjects, a total of 302 persons were drawn by lottery method in the presence of FCHVs and the village headman (See Figure 4).

Figure 4: Diagrammatic presentation on study subjects selection



### 3.4 Study Tools and variables

#### 3.4.1. Survey Questionnaire

We used interview guideline for collection of survey data (Appendix 2). The questions on exposure, condom use and care seeking behaviors were taken from the Standardized Questionnaire for Behavioral Surveillance Surveys (BSS; FHI). Mobility related questions were reviewed from past studies and updated and included in the questionnaire. The questions were first translated into Nepali then back translated into English in order to control for accuracy of translation. The questions assessing time lag for seeking care was modified into focusing on period. Questions were formulated in conversation style to have a natural flow in the interaction. They were arranged in logical order and sensitive questions on issues like sexual

behaviors were put near the end. The survey questionnaire included following independent and dependent variables;

#### A. Independent Variables

1. Mobile group: respondents, who reported having been away from the study area for economic purpose in the past 12 months
2. Non-mobile group: respondents, who reported they remained in the study area in the past 12 months or if they out of district only for social reasons but not for economic and study purpose in the past 12 months
3. Age: age of the respondents was categorized into four group's 15 to 24, 25 to 34, 35 to 44 and 45 to 49 years
4. Gender: respondents were categorized into male and female group
5. Ethnicity: respondents were categorized into three groups; Gurung, other mountain caste and hill lower caste. Within the other than mountain caste included were Bista, Thakali, lama, and Dolpali. Hill low caste included Biswakarma and Nepali.
6. Marital status: respondents were categorized into four groups; married monogamous, unmarried, divorced/widow or widower and polyandry marriage
7. Educational status: educational status was categorized into three groups; illiterate, up to five years of education and above five years of education

#### B. Dependent variables (Risk exposure)

1. Number of sexual partners: were divided into two groups, had one partner only and had more than one partners
2. Type of partners: into two groups, non regular partner and regular partner. Category Non-regular partner (NRP) included all cited partners except spouse
3. Condom use: condom usage was categorized into three groups: have used condom in the last sexual act, condom use in last sexual act with NRP and consistent condom use with NRP
4. Reasons for condom non-use: were divided into four categories, unavailability, no satisfaction, using other family planning devices and others. The others category included reported sex only with spouse, death of spouse, husband in other country, don't know about condom.
5. Self reported STDs: were divided into two categories yes and no
6. Self reported STDs symptoms: were divided into three categories for male and female

each. For males: pain\burning with urination, urethral discharges and sores\ulcers. For females it is categorized into 3 categories, as smelly discharge, lower abdominal pain and sores\ulcers Time

7. Responses taken: were categorized into four categories; taken medicine, told sex partner, stopped having sex and condom used
8. delay for seeking care: were divided into three categories: within one week, more than one week to within 2 weeks and more than 2 weeks
9. Source of care sought: was group into five categories: health institutions, medicine shop, friends advice, self-herbal treatment and traditional healers
10. Destination: mobility within country and outside of country
11. Duration: less than 90 days, more than 90 days to 180 days and more than 180 days
12. Accompanied with: were divided into three categories; with marital partner, alone or with friends and someone other than marital partner
13. Economic pursuit: were divide into three groups; trade, domestic servant and wage labour

### **3.4.2 Focus Group Discussion**

To supplement survey information, and for the data on indigenous headman system, a Focus Group Discussion (FGD) Guideline (Appendix 5) was prepared. It included topics on migration and vulnerability to STDs/HIV and the role of indigenous organizations for STDs/HIV prevention.

### **4.4.3 Focused structured interview**

We could conduct only one FGD out of the planned six FGDs, due to high agricultural season changed political scenario and subsequent celebration of Yartoong festival in the study area. So we did eight focused structured interviews of key persons: the headmen, one mobile female who went to India last winter, one non-mobile women, two health personnel, chiefs of Women's group, mother's group and Youth club.

### **3.5 Data collection**

#### **3.5.1 Survey questionnaire administration**

We started data collection from Kagbeni VDC, and then moved to next study VDC Jhong. The collection of quantitative data and qualitative data were carried out at the same time. Survey questionnaire were administered by interviewers and FGD and structured interviews were done by researcher herself. A standardized guideline (Appendix 2) was followed to get verbal informed consent. After having received assurance of verbal consent to participate in the study, the data collection process was started. Verbal consent is used for this study because doing signature is not socio-culturally acceptable. To do signature is often equated to buying or selling properties in this community. Two approaches were utilized in the survey questionnaire administration. For educated respondents self-completion of questionnaire was encouraged. A concise briefing of the questions was done then pencil & questionnaire were provided, and the informants were requested to drop filled questionnaire into a closed box. Trained male and female interviewers administered the survey-questionnaires (Appendix 1) to the respective gender when data collected from illiterate respondents. Privacy was maintained by asking for the appropriate time for interview and conducting interviews in a separate place. Further writing name or signing in questionnaire was left up to the respondents. Based on the findings of our pilot test the local term for STDs “Nhajojhokpa” was used for STDs. Also a list of STDs symptoms and their local term was prepared and used. Respondents that could not be contacted after three attempts were excluded. Respondents who had a history of STDs related symptoms were encouraged to visit the district hospital in Jomsom.

#### **3.5.2 Focus Group Discussion**

Potential participants for the FGD were identified and asked about participation during administration of questionnaires. One focus group among the 10 male migrants was conducted in Kagbeni VDC, after finishing the survey in the same VDC. For details of FGD participants and FGD guideline see (Appendix 5). The session was started by introducing oneself and then the researcher presented the objectives of the study. Topics were put forward one by one by the moderator (researcher herself) then answers and views from participants were sought. For equal participation by all participants, indexing was also done. At the end the FGD was concluded by elicitation of comments from participants and answering their queries about route of STD/HIV



transmission and it was clarified that condoms not only protect against unwanted pregnancy but also prevent STDs/HIV. The discussion was tape-recorded and notes were also taken.

### **3.5.3 Focused structured interview**

List of possible key informants were prepared and whether one should have the possibility to contact them was cleared with FCHVs and subsequently headman, female migrants, non-migrant women, the headman and chiefs of the local Mother's group were visited. Women's groups and Youth club chief were contacted by visiting the shop and their home. First talking started informally, then topics related to study were introduced, tried to probe for additional insights on given answers by asking for clarification. While doing the interview with different key informants, interviews were focused on issues that suitable to be get from them. This informal talk usually took half an hour to one hour to complete. Spontaneous answers on topics of interest were also investigated. Some key points were written in note book and complete note was made after back from interviews. Health personnel were visited during office hours, after expressing the objective of research were also briefly interviewed and records on STD was looked into as well.

### **3.6 Pilot Testing**

Before employing the study tools in the real setting, it was pilot tested among 10 respondents in Thini VDC of Mustang district. The Outcome was assessed on the basis of a checklist (Appendix 6), and then updated accordingly.

### **3.7 Recruitment and training of interviewers**

Initially, four interviewers were (2 males and 2 females with bachelor's degrees in social science) recruited. They were briefed about the objective of the study, questionnaires and study variables, interviewing technique, the recording of answers and the importance of gaining trust. Later we found that these interviewers from the city are not well suited for interviewing illiterate respondents. Then we recruited two local primary school teachers (male and female teacher). They were also trained like the previous interviewers. These two local primary school teachers administered the interview questionnaire to illiterate respondents.

### **3.8 Data handling**

Every filled questionnaire was checked for accuracy and completeness then it was given a code number and properly filed away. Incomplete or partially completed questionnaires were noted then it was asked why it was so contacting the respective interviewers. A total of 21 questionnaires were discarded due to incomplete information. Incomplete information was found for both self filled questionnaires and administered by interviewers.

### **3.9 Data Analysis**

#### **3.9.1 Survey data analysis**

First answers in open ended questions of survey questionnaire were read and categorized. Then coding sheet was prepared. Survey data was entered into Statistical Package for Social Sciences (SPSS version 11) for Windows. Before the analysis data were cleaned, the consistency and validity was assured by a double entry check, which means entered data are rechecked one by one tallying. Descriptive statistics and graphs for continuous variables and the frequency distribution of categorical variables were also prepared.

Initially, bi-variate analysis was done. Mean and Standard Deviation was calculated for continuous variables: respondent's age, educational attainment, duration of migration, number of sexual partners and time sought for care. These continuous variables were also changed into categorical variables for further analysis. To make categories we considered concentration of variables and usual practices as cut-off points. The Chi square test was employed to handle categorical and nominal variables. When the value in any cell was less than 5, Fisher's Exact Test was employed. The Statistical significance was set at  $p = <0.05$ . Percentage figures were presented by rounding.

#### **3.9.2 Qualitative data Analysis**

First FGD data on tape-recorder was transcribed into Nepali then both focused structured interview and FGD data was translated into English and entered in computer using Word Perfect software package.

### **3.9.3 Data integration**

Qualitative data was integrated with quantitative data to give insights and supplement information of survey findings. Especially illuminating statements were also incorporated by masking the respondent's identity. Data on headman system was based on qualitative data only.

### **3.10 Ethical consideration**

With ethical clearance from Norwegian Ethical Clearance Committee in Norway and Nepal Health Research Council in Nepal (NHRC), the data collection commenced. The approval letter from NHRC was submitted to the District Development Committee, Mustang. Verbal informed consent of the interviewee was taken before administering the questionnaire, (Appendix 2-3), as the majority of respondents are illiterate (>58 % illiteracy rate) in the study area and there is no cultural acceptance for written consent. So we took written testimony from the FCHVs stating that the residents of the respective wards gave verbal consent. Confidentiality was maintained by number coding instead of names in the questionnaire. Respondents participated voluntarily, no incentive was provided. Anyone not willing to participate was excluded from this study, at any stage of data collection. Respondents with known STDs symptoms were referred to the district hospital.

### **3.11 Validity and reliability**

To ensure the validity and reliability of the study the following strategies were taken;

We applied two tier methods for sampling. Firstly, we selected two representative study VDCs, and prepared the sample frame and made a random selection of samples. The structured questionnaire included open end questions as well (See questionnaire Appendix 4). We used Standardized Behavioral Surveillance questions developed by Family Health International.

FCHV's from the study area recruited as facilitators, Local leaders "Mukhiya", mother's groups and youth club chiefs were oriented about the objectives of the study at the outset of fieldwork. Confidentiality was maintained by coding the questionnaires and maintaining strict confidentiality in the data administration process. One man volunteered as facilitator by convincing male mobile people of the importance of the study. As stated earlier subjects were enrolled into the study only after informed oral consent was achieved.



FCHV visiting household and asking appropriate time for interview

Cross checking of the filled-in questionnaire was done by asking people whether they had been interviewed. Incompletely filled-in questionnaires were excluded. Information provided in open-ended questions was read then coded and categorized according to theme. Then the data was entered into computer.

## CHAPTER 4: STUDY RESULTS

---

This comparative cross-sectional, community based, study was conducted in a remote mountainous district of Nepal. Out of total enrolled (276) samples of 15 to 49 years age group, only 255-survey questionnaire were analyzed for the final result after excluding for missing data (21). This study results were drawn from interviews, 1 FGD and 8 focused structured interviews. Among 255 survey participants, 60% (153) of the respondents who reported mobility out of the study area for economic purpose were assigned into "Mobile group" category. While those non-migrated or/and moved for social reasons, which represented 40% (102) of total, were assigned into "Non-mobile group". Qualitative data provided some insight into head-man system and supplemented survey findings.

### 4.1 Socio-demographic characteristics of samples

Table 2 shows the frequency distribution of respondents by some selected socio-demographic variables. The median age of the entire sample was (32.01±SD 9.7) years. The mobile group was comparatively younger by two years (31±SD9.2) than the non-mobile group (33±SD 10.3). No significant differences in age between the two groups were observed (Chi-square test,  $P = 0.68$ ).

In total 45% of (115) the respondents were males and 55% (140) were females. But within the groups, gender composition was different. In the mobile group, the male to female ratio was 1.4:1, while it was 0.4:1 in the non-mobile group. The difference in sex composition between the mobile and the non-mobile group was found highly significant (Chi-square test,  $P = 0.0001$ ).

By ethnicity, the majority (85%) of the respondents were Gurungs, followed by mountain caste Thakuris and Bista 11 % (29). Hill low caste (Nepali and Biswakarma) was the minority group. No significant difference in ethnic composition in the mobile and non-mobile groups (Chi-square Test,  $P = 0.29$ ) was observed.

By marital status, the higher percentage (39%) of unmarried and divorced/widow/ widower were (7%) found in the mobile group. In contrast, a higher percentage of monogamously married (61%) and polyandry (9%) was found in the non-mobile group. A borderline

significance with the differences in marital status between the two groups was found (Chi-square Test,  $P = 0.042$ ).

The mean year of educational attainment was 3 years (SD 3.2) for all respondents. There was a wider difference in years of educational attainment from “illiterate up to 14 years”. Comparatively, the people belonging to mobile group were better educated and have higher years of education than those in non-mobile group. The educational difference between the two comparison groups was observed to be highly significant (Chi-square Test,  $P = 0.0001$ ).

Above 5 years	43(28%)	12(12%)	55(21%)	
				<b>P = 0.0001</b>
Socio-demographic variables	Mobile group (N = 153) n = %	Non-mobile group (N = 102) N = %	Total (N = 255) n = %	P Value ( $\chi^2$ )
<b><u>Age</u></b>				
15-24	52 (34%)	28 (28%)	80 (31%)	
25-34	46 (30%)	24 (24%)	70 (28%)	
35-44	42 (28%)	33 (32%)	75 (29%)	
45 & >	13 (9%)	17 (17%)	30 (12%)	
				P = 0.68)
<b><u>Gender</u></b>				
Male	88 (58%)	27 (26%)	115 (45%)	
Female	65(42%)	75 (74%)	140 (55%)	
				<b>P=0.001</b>
<b><u>Ethnicity</u></b>				
Gurung	134 (88%)	82 (80%)	216 (85%)	
Other mountain caste	14 (9%)	15 (15%)	29 (11%)	
Hill low caste	5 (3%)	5 (4%)	10 (4%)	
				P = 0.29
<b><u>Marital Status</u></b>				
Married (monogamous)	78 (51%)	62 (61%)	140 (55%)	
Unmarried	60 (39%)	27 (26%)	87 (34%)	
Divorced & widow	10 (7%)	4 (4%)	14 (6%)	
Polyandry	5 (3%)	9 (9%)	14 (6%)	
				<b>P=0.042</b>
<b><u>Educational attainment</u></b>				
Illiterate	47 (31%)	52(51%)	99 (39%)	
Up to 5 years	63 (41%)	38 (37%)	101 (40%)	

Table 2: Mobile & non-mobile group by socio-demographic characteristics, Mustang district, 2003

## **4.2 Risk exposure**

### **4.2.1. Risky sexual behaviour**

Risky sexual behavior that exposes one to being at risk for STDs was measured through two variables, namely types and number of partners in past 12 months. It was found that 69 % (176 out of 255) of the respondents were sexually active in the past 12 months. It was found that comparatively higher percentage of non-mobile respondents 71% (72 out of 102) had been sexually active than those (68% - 104 out of 153) in the mobile group. No statistical differences in the mobile and non-mobile groups that were sexually active in the past 12 months were observed (Chi-square test,  $P = 0.799$ ).

#### **4.2.1.1 Number of sexual partners**

It was found that out of a total 104 sexually active mobile respondents, nearly one out of every three (29%), were reported to have had more than one sexual partner in the past 12 months. On the contrary, only 15% of the non-mobile (11 out of 72 sexually active) were reported of having more than one partner. A statistically significant association between number of partners and migratory status (Chi-square test,  $P = 0.036$ ) was observed. It was also found that the average number of sexual partners reported were higher among the mobile group ( $1.7 \pm \text{SD } 1.17$ ) compared to the non-mobile group ( $1.6 \pm \text{SD } 1.01$ ). During FGD of male migrants, it came out that they have experiences of sexual relationships with 4 to 13 women during their lifetime.

#### **4.2.1.2 Demographic and social factors in relation to number of partners**

Further analysis on number of sexual partners with respect to socio-demographic variables found that having more than one partner was associated significantly with the 15 to 24 age group (Fisher's exact test,  $P = 0.029$ ). A gender specific difference was also observed: mobile males reported a higher tendency of having more than one partner. Still more, it was revealed that a higher percentage of the un-married reported history of more than one partner and that was also statistically significant (See table 3).



Table 3: Mobile and non-mobile group by number of sexual partners in relation to  
Socio-demographic characteristics, Mustang district, 2003

Socio-demographic Variables	Mobile group (N = 104)			Non-mobile group (N = 72)			P value (†)
	1 partner n %	> 1 Partner n %	Total n %	1 partner n %	> 1 Partner n %	Total n %	
Age							
15 – 24	15 (60%)	10 (40%)	25 (100%)	13 (93%)	1 (7%)	14 (100%)	<b>P = 0.029</b>
25 – 34	25 (66%)	13 (34%)	38 (100%)	14 (74%)	5(26%)	19 (100%)	P = 0.546
35 & >	34 (83%)	7 (17%)	41 (100%)	34(87%)	5(13%)	39 (100%)	P = 0.594
Gender							
Male	49 (64%)	28 (36%)	77 (100%)	19 (90%)	2 (10%)	21 (100%)	<b>P = 0.018</b>
Female	25 (93%)	2 (7%)	27 (100%)	42 (82%)	9 (18%)	51 (100%)	P = 0.216
Education							
Illiterate	28(82%)	6(18%)	34(100%)	35 (85%)	6(15%)	41(100%)	P = 0.723
Up-5 yrs	33 (73%)	12 (27%)	45 (100%)	19 (86%)	3(14%)	22(100%)	P = 0.230
> 5years	13 (52%)	12 (48%)	25 (100%)	7 (78%)	2 (22%)	9 (100%)	P = 0.178
Marital Status							
Unmarried	11 (41%)	16 (59%)	27 (100%)	8 (89%)	1 (11%)	9 (100%)	<b>P = 0.012</b>
Ever married	63 (82%)	14 (18%)	77 (100%)	53 (84%)	10 (16%)	63 (100%)	P = 0.718

† For values less than five, Fisher's Exact Test was considered instead of Chi-square Test

#### 4.2.1.3 Type of sexual partner

We found that the non-mobile group had relatively more established sexual relationships with their marital partners than the mobile married. An association between sexual partner as spouse and mobility status was observed (Chi-square Test,  $P = 0.012$ ). Furthermore, sexual relationships with CSWs were reported only by the mobile group (Fisher's exact test,  $P = 0.011$ ). We found a comparatively higher tendency of the mobile group to have non-regular sexual partners than the non-mobiles. For instance, the comparison of sexual partners between mobile and non-mobile was: 6% vs. 2% for unknown person, 14% vs. 4% for lovers, and 7% vs. 2% for friends respectively (see table 4).

Table 4: Mobile & non-mobile group by types of sexual partners involved with, Mustang district, 2003

Types of partner	Mobile group (N =153) n %	Non-mobile group (N =102) n %	Total n %	P value (†)
CSWs				
Yes	11(7%)	-	11(4%)	<b>P = 0.011</b>
No	142 (93%)	102	244 (96%)	
Unknown persons				
Yes	9 (6%)	2 (2%)	11(4%)	P = 0.131
No	144 (94%)	100(98%)	244 (96%)	
Friends				
Yes	11 (7%)	2 (2%)	13 (5%)	P = 0.063
No	142 (93%)	100 (98%)	242 (95%)	
Lover				
Yes	21 (14%)	4 (4%)	25 (10%)	<b>P = 0.01</b>
No	132 (86%)	98 (96%)	230 (90%)	
Marital partner				
Yes	76 (50%)	67 (66%)	143(56%)	<b>P = 0.012</b>
No	77 (50%)	35 (34%)	112 (44%)	

† For values less than five, Fisher's Exact Test was considered instead of Chi-square Test

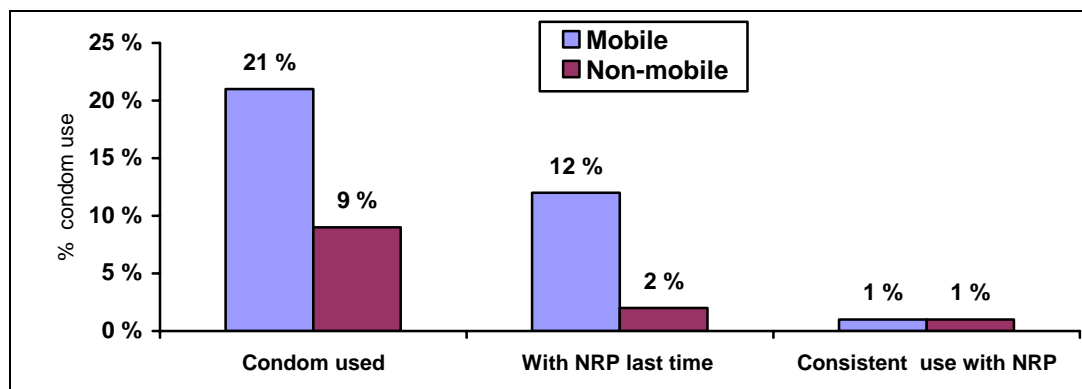
Further analysis was done on mobile and non-mobile group's sexual relationships with lovers and CSWs with respect to socio-demographic variables. It was found that lover as sexual partner was only associated with age and gender. Lover as sexual partner was reported only by the 15 to 24 years age group. The difference was statistically significant (Fisher's exact test,  $P = 0.009$ ). Out of the 25 respondents, 20 were mobile males and there was one mobile female. Among non-mobiles, two males and 2 females reported lover as sexual partner. The differences was found statistically significant (Fisher's exact test,  $P = 0.025$ )

It was found that only male mobile people reported CSWs as sexual partner. Among the eleven mobile persons who had CSWs as sexual partners: 7 (64%) were younger than 25 years; 55% attained up to five years of education; and 64% were unmarried. This distribution revealed a higher tendency for younger, unmarried, and mobile males with up to five years of education to be associated with CSWs.

### 4.3 Condom use

We found that condom use was very low (16% of entire sample) in the study setting. Less than quarter of the mobile (21%, in number 32) respondents reported that they had used condoms in their last sexual act, while it was less (9) among non-mobiles. A statistically significant association between condom use and mobility was observed (Chi-square test,  $P = 0.001$ ,  $CI = 3.5 \&$ ). In the mobile group, a total of eighteen mobile people reported that they used condoms at the last encounter with non-regular sexual partner. Only a few were found to be consistent users of condoms with NRP, among which two were mobile and one non-mobile (See Figure 5). During our FGD with mobile males, the respondents, especially those in higher age group, revealed that they were unaware of the fact that condoms could protect them from STDs. They have perceived condoms as a means for preventing unwanted pregnancies only and not otherwise.

**Figure 5:** Mobile & non-mobile group by pattern of condom use, Mustang district, 2003



#### 4.3.1 Demographic and social factors in relation to condom use

Further analysis of condom use with respect to socio-demographic variables found that condom usage was associated with higher age group (35 & above) and unmarried (See Table 5).

Table 5: Mobile and non-mobile group by condom use in relation to Socio-demographic characteristics, Mustang district, 2003

Demographic and Social Variables	Mobile group (N = 153)			Non-mobile group (N = 102)			P value (†)
	Yes n %	No N %	Total n %	Yes n %	No n %	Total n %	
Age							
15 – 24	10 (19%)	42(81%)	52 (100%)	4 (14%)	24 (86%)	28 (100%)	P = 0.579
25 – 34	10 (22%)	36 (82%)	46 (100%)	4 (17%)	20(83%)	24 (100%)	P = 0.615
3 & >	12 (33%)	43 (67%)	55 (100%)	1(2%)	49(98%)	50 (100%)	P = 0.002
Gender							
Male	31 (35%)	57(65%)	88(100%)	6 (22%)	21(78%)	27 (100%)	P = 0.245
Female	1 (2%)	64(98%)	65(100%)	3(16%)	72(96%)	75(100%)	P = 0.623
Education							
Illiterate	5(11%)	42(89%)	47(100%)	2 (4%)	50(96%)	52(100%)	P = 0.252
Up-5 yrs	18(29%)	45 (71%)	63 (100%)	5 (13%)	33(87%)	38(100%)	P = 0.090
> Years	9 (21%)	34 (79%)	43 (100%)	2(17%)	10 (83%)	12 (100%)	P = 1.000
Marital Status							
Unmarried	13 (22%)	47 (78%)	60 (100%)	1(5%)	26(95%)	27(100%)	P = 0.004
Ever married	19(20%)	74 (80%)	93 (100%)	8 (11%)	67 (89%)	75 (100%)	P = 0.009

† For values less than five, Fisher's Exact Test was considered instead of Chi-square Test

#### 4.3.2 Type of partner and condom use

It was found that there was the highest tendency for condom use with high-risk partners. Least tendency for condom use was observed among marital partners (see table 6). Though there were observed differences in condom use with different types of partners, they were statistically insignificant, may be due to small sample size.

Table 6: Mobile and non-mobile group by condom use among different sexual partners, Mustang district, 2003

Types of partner	Mobile group			Non-mobile group			P value (†)
	Yes n %	No n %	Total n %	Yes n %	No n %	Total n %	
Marital partner (N = 143)	18 (24 %)	56(58 %)	76(10 %)	8 (12 %)	59(8 %)	67(100 %)	P = 0,073
Lover (N = 25)	8 (38%)	13 (62%)	21 (100%)	-	4 (100%)	4 (100%)	P = 0.134
Friend (N =13)	4 (36%)	7(64%)	11(100%)	-	2(100%)	2(100%)	P = 0.1000
Unknown person (N = 13)	6(67%)	3(33%)	9(100%)	2(100%)	-	2(100%)	P = 0.1000
CSWs (N = 11)	8(73%)	3(27%)	11(100%)	-	-	-	-

† For values less than five, Fisher's Exact Test was considered instead of Chi-square Test

### 4.3.3 Reasons for not using condom

A total of 94 respondents reported the reasons for not using the condoms. In the mobile group, more than half reported the unavailability of condom as the reason. An important point was that 5% of the mobile respondents and 29% of non-mobile group reported the adoption of other family planning methods as reason behind their practices for not using the condoms. Within the other group responses included the death of husband and husband being international migrant. It was also found that all the five mobile respondents who reported adoption of other family planning devices were females who had opted for surgical contraceptive (Mini-lap). Among the nine non-mobile respondents, five said they used Depo-Provera injection; the other four were males who said their wives had chosen a surgical contraceptive.

Table 7: Mobile and non-mobile group by reasons for not using condom, Mustang, 2003

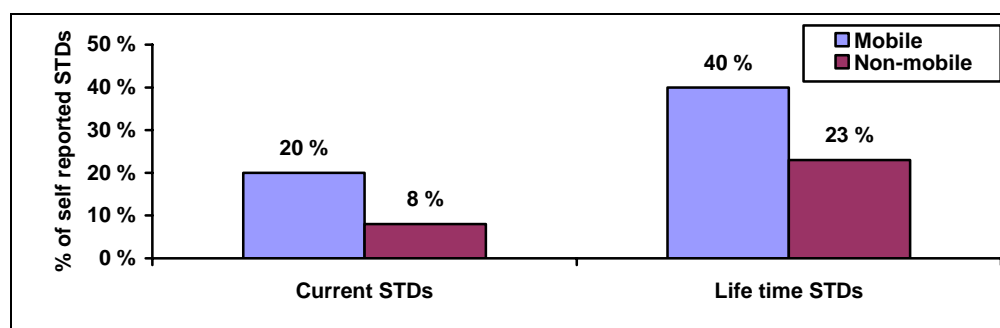
Reasons	Mobile (N = 63) n %	Non-mobile (N = 31) n %	Total (N= 94) n %
Unavailability	35 (56%)	12 (39 %)	47 (50%)
No satisfaction	15 (24%)	6 (19%)	21 (22%)
Using other FP method	5 (8%)	9 (29%)	14 (15%)
Others	8 (12%)	4 (13%)	12 (13%)

### 4.4 Self- reported sexually transmitted diseases

It was found that a total of 15% (38) of all the respondents reported that they had suffered from STDs in the past 12 months. With regard to mobility status, 20% (30 out of 153) were mobile and 8% (8 out of 102) were non - mobile. A statistically significant association between mobility status and current self-reported STDs was found (Chi-square test,  $P = 0.010$ ,  $CI = 1.3 - 6.5$  &  $OR = 2.9$ ). When self-reported STDs for life time was considered, slightly more than a quarter (33%) of all the respondents reported that they had suffered from STDs during the course of their lives. Among the mobiles, the self-reported STDs in lifetime were found to be as high as 40% (61 out of 153), whereas it was nearly three times less (23 out of 102) in the non-mobile group. The difference for self-reported STDs for lifetime between mobile and non-mobile was observed to be highly significant (Chi-Square Test = 0.004,  $CI = 1.2 - 2.7$ ,

OR = 1.8)) (See Figure 6).

**Figure 6:** Mobile and non-mobile group by self-reported STDs in the past 12 months & in Lifetime, Mustang district, 2003



#### 4.4.1 Demographic and social factors in relation to current self-reported STDs

It was found that current self-reported STDs were associated with higher age group (35 & above). The difference was statistically significant (Fisher's Exact Test,  $P = 0.008$ ). It was also observed to be associated with being married (Chi-square Test,  $P = 0.016$ ). In addition, up to five years of educational attainment was found to be associated with reported STDs.

Table 8: Mobile and non-mobile group by current self reported STDs in relation to socio-demographic characteristics, Mustang district, 2003

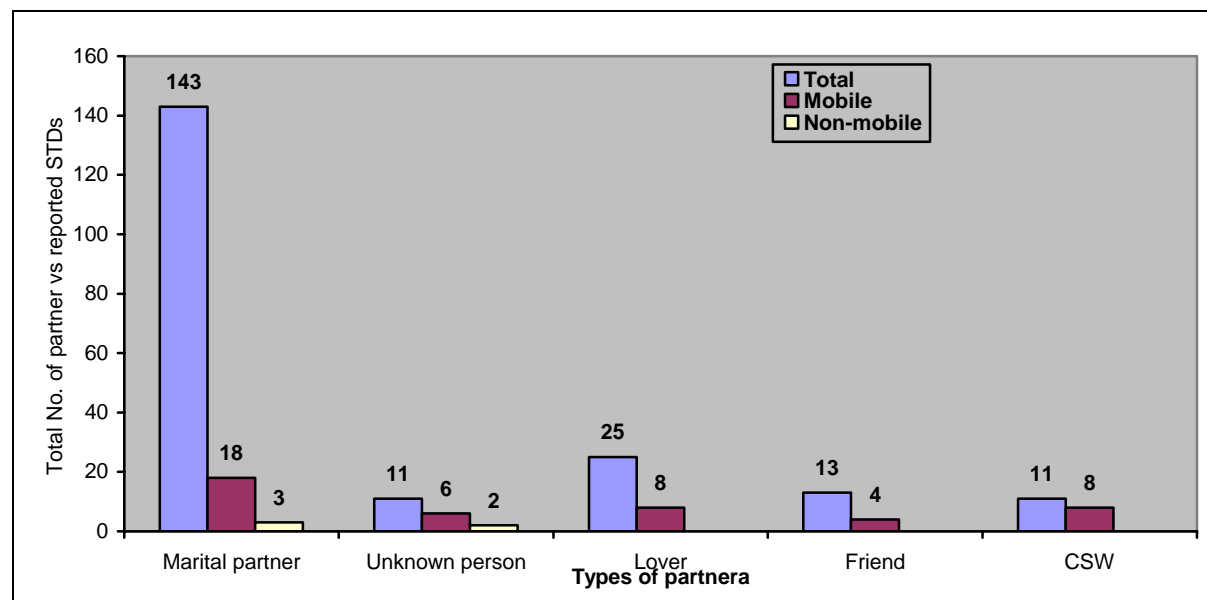
Demographic and Social Variables	Mobile group (N =153 )			Non-mobile group (N = 102)			P value (†)
	Yes	No	Total	Yes	No	Total	
Age							
15 – 24	9(17%)	43(83%)	52 (100%)	3 (11%)	25 (80%)	28 (100%)	$P = 0.416$
25 – 34	7 (15%)	39 (85%)	46 (100%)	2 (8%)	22(92%)	24 (100%)	$P = 0.258$
35 & above	14 (25%)	42(75%)	55 (100%)	3(6%)	46(94%)	50 (100%)	<b><math>P = 0.008</math></b>
Gender							
Male	23 (26%)	65(74%)	88 (100%)	3 (11%)	24(89%)	27 (100%)	$P = 0.121$
Female	7(11%)	58(89%)	65 (100%)	5 (8%)	7 (93%)	75 (100%)	$P = 0.387$
Education							
Illiterate	11(23%)	36(77%)	47(100%)	5 (10%)	47(90%)	52(100%)	$P = 0.063$
Up to 5 years	13 (21%)	50 (79%)	63 (100%)	2(5%)	36(95%)	38(100%)	<b><math>P = 0.044</math></b>
> years	6 (14%)	37 (86%)	43 (100%)	1(8%)	11 (92%)	12 (100%)	$P = 1.000$
Marital status							
Unmarried	10 (17%)	50(83%)	60 (100%)	2 (7%)	25 (93%)	27 (100%)	$P = 0.247$
Married	20 (21%)	73 (79%)	93 (100%)	6 (8%)	69 (92%)	71 (100%)	<b><math>P = 0.016</math></b>

† For values less than five, Fisher's Exact Test was considered instead of Chi-square Test

#### 4.4.2 Self-reported STDs in relation to type of partners

The analysis of self-reported STDs vs. types of partner revealed that sex with marital partner had the lowest burden of STDs. It was found that out of 143 respondents who reported spouse as partner, a total of 21(15%) respondents had also suffered with STDs. Among them, 14 were mobile males and 4 were mobile females. Out of the remaining three, two were non-mobile males and the rest one was female. By mobility and gender, it was found that mobile males occupied the highest (67%) proportion (14 out of 21).

**Figure 7:** Mobile and non-mobile group by number of current self-reported STDs in relation to type of sexual partner



‡ Total of sexual partners and total of STDs exceeded than the total number of sexually active and total self-reported STDs due to reported multiple sexual partners

CSWs were found to be the most risky partner. Out of eleven mobile males who reported sex with CSWs, nearly three (73%) out of every four had reported of having STDs. Unknown partner as sexual partner was found to be the second highest risky partner. Out of 11 who had reported of having sex with unknown persons, six mobiles - four male and two female, and two non-mobile males reported STDs. Out of 25 persons who reported lovers as sexual partners, eight mobile males reported STDs. Friends as sexual partners were reported by 13 respondents. Out of this, three male and one female mobile reported STDs.

#### 4.4.3 Current self-reported STDs symptoms

It was found that out of the 23 males, who had reported STDs in mobile group, the majority of nearly three out of every five (61%) had history of pain/burning urination. Among the non-mobile males, the majority (67%) were reported to have suffered from sore, ulcers in genital parts and 33% from urethral discharge. Among females sore/ulcers was the main symptoms found for both mobile and non-mobile group (See table 9).

Table 9: Descriptions of current self-reported STDs symptoms by mobility status & gender, Mustang district, 2003

Symptoms	Mobile (N = 30)		Non-mobile (N = 8)		Total (N = 38) n %
	Male (n = 23) n %	Female (n = 7) n %	Male (n = 3) n %	Female (N = 5) n %	
Pain / burning urination	14(61%)	-	-	-	14 (37%)
Urethral discharge	5(22%)	-	1 (33 %)	-	6 (6%)
Sore / Ulcers	4 (17%)	4(57%)	2 (67%)	3 (60%)	14 (37%)
Lower abdominal pain	-	3 (43%)	-	2 (40%)	4 (10%)

#### 4.4.4 Shame and Stigma associated with STDs

Out of 84 who reported having had STDS during their life, 2% (2) suffered from discharge for as long as 15 years. Data from the FGD and focused interviews also made apparent the existence of STDs in the community. A woman of 48 years, who had never migrated, reported that she had been suffering from smelly discharge for more than 16 years but had neither sought cure nor told her husband because of shame. Another key informant stated that syphilis was common. She knew that her neighbor's wife died of syphilis. She also discovered later that the husband of victim had previously been infected but not treated properly as a result of which the innocent wife got infected and died prematurely.

In an interview with one health care provider, he expressed that he thought there was a high possibility of significant under-reporting. He cited one example: no leprosy cases had been reported in Mustang for a long time. Last year one leprosy case was identified by chance. Actually the case was diagnosed in the Leprosy hospital in Pokhara (Regional Hospital in



adjacent district,). Like leprosy, STDs/HIV is also associated with shame and stigma. So it is possible that people who have suffered from STDs may be getting care by covering their real identity or they have sought care from someone outside the formal health care system or at health institutions out of district.

## 4.5 Cure seeking behaviors

### 4.5.1 Response taken

We found that out of a total of 38 self-reported STDs, only 79% (30) of them had taken one or multiple actions. Those who took actions were 25 respondents (83%) in the mobile group and only 5(63%) respondents in the non-mobile group. No significant differences (Chi-square Test,  $P = 0.05$ ) in response taken for mobile and non-mobile group were observed.

From Table 10 it is obvious that all the four responses were reported more by mobiles than non-mobiles. Among different responses, medicine taking was the major response. Condom use was the least reported option - 30% among migrants and 25% among non-migrants. There was no significant statistical association between mobile and non-mobile group with respect to types of response taken.

Table 10: Mobile and non-mobile group by response taken for self-reported STDs, Mustang District, 2003

	Mobile (N = 25) n %	Non-mobile (N = 5) n %	Total (N = 30)	P value (†)
Taken Medicine	19 (63%)	4	23 (78%)	$P = 0.687$
Told sex partner	15 (60%)	3	18 (60%)	$P = 0.697$
Stopped having sex	10 (40%)	1	11(44%)	$P = 0.100$
Condoms used	9 (36%)	2	11 (44%)	$P = 0.906$

† Fisher's Exact Test was considered

‡ Total more than 30 due to multiple answers

#### 4.5.2 Time delay for cure sought

Out of the 30 self-reported STDs who took response for their STDs symptoms, 63% sought cure within a week. It was found that mobiles were more prompt (68 % vs. 40%) in seeking cure than their counter part the non-mobiles. This has is also been supported by mean time for cure among mobile group (1.45 weeks  $\pm$ SD .72) compared to (1.80 $\pm$ SD .83) among non-mobiles (See Table 11). There were no significance differences in time for care sought between mobile and non-mobile group (Chi-square Test,  $P = 0.55$ ).

**Table 11:** Mobile and non-mobile group by time delay for care sought for current self-reported STDs, Mustang district, 2003

	Migrants (N = 25) n %	Non-migrant (N = 5) n %	Total n %
Within 1 week	17 (68%)	2 (40%)	19 (63%)
8 to 14 days	5 (20%)	2 (40%)	7 (23%)
> 2 weeks	3 (12%)	1 (20%)	4 (13%)

#### 4.5.3 Source of cure sought

We found that the most sought source of cure was health institutions. Comparatively more (72%) mobile respondents visited health institutions than the non-mobile respondents. The other preferred source of cure was medicine shops. Slightly more than half (56%) of the mobile respondents reported getting cure from a medicine shop. Interestingly, twelve percent of the mobile respondents reported seeking cure from traditional healer but none from the non-mobile group (see table 12). There were no significant differences observed in source of cure sought between mobile and non-mobile group. It was found during FGD that reasons for not seeking cure were the distance of health institutions. One of the participants said “It’s better to go Health Post than the district hospital, because there they will give you only “Cetamol tablet”. Three respondents reported that they did not seek cure as the symptoms had healed itself.

Table 12: Mobile and non-mobile group by source of cure sought for self-reported STDs

Mustang district, 2003

	Mobile (N = 25) n %	Non-mobile (N = 5) n %	Total (N = 30)	P value (†)
Health Institution	18 (72%)	3 (60%)	21(70%)	P = 0.426
Medicine shop	14 (56%)	2 (40%)	16 (53%)	P = 0.426
Friends advice	8 (32%)	1 (20%)	9 (30%)	P = 0.650
Self herbal-treatment	7 (28%)	2 (20%)	9 (30%)	P = 0.650
Traditional healers	3(12%)	-	3 (10%)	P = 1,000

† Fisher's Exact Test was considered

‡ Total more than 30 due to multiple answers

## 4.6 Self-reported STDs with respect to mobility related variables

A total of 30 mobiles were reported to have STDs related symptoms. Further analysis was done to assess the self-reported STDs association with mobility patterns (Table 13). It was found that 70% of self-reported STDs were among those mobile respondents whose destination was outside the Nepal. Interestingly, all the three male mobile males who visited Arab, USA and Japan, reported a history of STDs symptoms. Migration within Nepal has showed comparatively lower disease loads (30%).

Duration wise STDs distribution showed that those with the shortest (90 days) duration have the highest burden of (58%) self-reported STDs. Slightly more than half (58%) of the self-reported STDs were those who were away from home for up to 90 days. It was found that those who migrated with friends or alone had the highest proportion of (46%) self-reported STDs. By economic pursuit, migrants involved in trade were found to have the highest self-reported STDs (65%) burden, followed by wage labor (23%).

Table: 13 Self-reported STDs association with mobility related variables, Mustang district, 2003

Migrants	Mobile group N (153)	STDs N (30)	Burden of STDs
<b><u>Destination</u></b>			
Migration within country	45	9	30%
Migration outside country	108	21	70%
<b><u>Duration</u></b>			
< 90 days	67	11	58%
>90 to 180 days	62	16	32%
>180 days	24	3	10%
<b><u>Accompanied with</u></b>			
With marital partner	34	5	16%
Alone or with friends	82	14	46%
Other than marital partner	24	11	37%
<b><u>Economic pursuit</u></b>			
Trade	107	17	65%
Domestic servant	9	3	11%
Wage labor	19	6	23%

Further analysis was done to examine the influence of gender on the above association. It was found that among mobile-males, the highest STDs burden was concentrated among those who migrated outside Nepal (78%), for the period of 90 days (48%), migrating alone or with friends (48%) and being involved in trade (67%). Among female migrants, slightly more than half (57%) of the STDs burden was among those who moved within the country. The shortest duration of 90 days mobility period had the highest burden of STDs (86%). Also for females, mobility alone or with friends and those other than marital partner was found to be equally risky. By economic pursuit, trade occupied 60% of the disease burden among females.

Table: 14 Gender wise distributions of Self-reported STDs among migrants with respect to mobility related variables, Mustang district, 2003

Migration variables	Male mobile (N=23) N %	Female mobile (N=7) N %
<b><u>Destination</u></b>		
Migration within country	5 (22%)	4 (57%)
Migration outside country	18 (78%)	3 (43%)
<b><u>Duration</u></b>		
> 90 days	11 (48%)	6 (86%)
90 to 180 days	10 (43%)	0
< 180 days	2 (9%)	1 (14%)
<b><u>Accompanied with</u></b>		
With marital partner	4 (17%)	1(4%)
Other than marital partner	8 (35%)	3 (43%)
Alone or with friends	11 (48%)	3 (43%)
<b><u>Economic pursuit</u></b>		
Trade	14 (67%)	3 (60%)
Domestic servant	1 (4%)	2(40%)
Wage labor	6 (29%)	0

## **4.8 Descriptions of headman system**

Mukhiya means headman or leader; he is responsible for the wellbeing of his village. This system has existed in Mustang since time immemorial. No data could be found on when and who founded this headman system. Though changes also seems to be occurring in this remote district, the headman system is still strong, there are instances, when they are more powerful than formal politically elected leaders.

### **4.8.2 Structure and function**

Structure: one adult male from each household are eligible to be member of the “Samaj”, which means the community organization. To be a member, the household should pay a nominal charge. Every year two headmen are selected by voting. If someone is away from the village for a long-time, his membership is withdrawn but he could become member again after paying a charge.

Function: there is a norm that one of the headmen should always remain in the village and take care of the village. Decisions are made in meetings. To call a meeting, the headman orders the Drummer, in local term Katuwal to beat his drum and announce the time of the meeting and number of males that should attend per household. Generally the first announcement is done in the evening called “Ghok Halne”, usually one day before the proposed meeting. There is one Katuwal in each village. This drummer-ship is patrilineal. On the meeting day, Katuwal again beats his drum about 30 minutes before the set time. The meeting generally proceeds like this: The Headman talks about the issue at hand and then there is a discussion. The last decision is the headman’s decision and it’s binding for the whole village. Those not attending the meeting are obliged to pay a heavy fine called “Chhepa” that could be as high as 500 rupees. It is deposited in the “Samaj fund”. Interestingly, with this “Samaj fund” in Marpha VDC now, they have started to provide loans for those who seek international employment. Actually it was originated for financing the salt trade in the past. This information is quite important because it may be possible to tie up this fund with HIV/AIDS prevention and control program. There is a community house in every village set aside for these meetings. A man can be mobilized through the Mukhiya system much in the same way as the women are by “Aama Samuh” or mother’s group. Interestingly the mother’s group concept was introduced by Annapurna Conservation Area Project, which is working for ecological conservation and tourism promotion. Now it is

internalized as their own system. The women's group is very active in environmental sanitation activities. For example, every month women from each household gather and they perform cleaning in the community.

The headman system and mother's groups are potential resources for STDs/HIV prevention and control. Especially, it was found that they themselves are also concerned with reproductive health issues. For instance, a girl who gets pregnant may complain about it to the headman. As a tradition, he will then call a meeting and make the boy accept her as wife and or exempt him from duty by paying some money for delivery care. Unlike in other parts of Nepal, specifically in Hindu group, a child born out of marriage is not a big issue in this community. They are called "Nhelus" and brought up in the maternal house. We found five Nhelus in the study areas; all of them were eight to nine years old. According to FCHVS, Nhelus are banned by the mothers group so that no new births of Nhelus are occurring nowadays. It was also cited that the people might have started using condoms instead of changing their extramarital behaviors to prevent the birth on Nhelus. It was found that the Kagbeni sub-health post distributed a total of 500 condoms during FY 2001 - 2002.

#### **4.8.2 Mobilization for prevention and control of STDs/HIV/AIDS**

It was found that the village headman is also the chief of various development committees such as electricity supply, forest plantation, and irrigation, construction of pavement & drainage system and banning plastic bags in Mustang district.

In a brief discussion with the headman, it had been revealed that HIV/AIDS might be a problem in Mustang district. It is possible that youth are involved in high-risk behaviors and are ready to make an effort for the prevention and control of STDs/HIV. To better understand how much he perceived HIV as a potential problem for this we asked a probing question, like this "well, we will call a meeting to talk about this great problem. But since it is weeding time now, I am afraid very few will come. So how great a fine will you set for the absentees? He said to have meeting is ok, but there will be no fine because the issues for the meeting are forwarded by you outsiders.

#### **4.8.3 Community House in Kathmandu**

Inhabitants of Mustang are co-operative and usually have strong communal attachments. The construction of the magnificent Gumba in Kathmandu is one example. The aim of the Gumba construction was to help people from Mustang with the religious and social dimensions of their community. Fund for the Gumba construction was raised through donation, membership registration and by ticket selling during festivals such as Lhosar, Dharjyang, Yartung and through individual contributions.





## CHAPTER 5: DISCUSSION

---

This cross-sectional study was conducted in the Mustang district of Nepal, which is located in the northern part of country on the border with Tibet. This is a remote mountainous district, linked with air service but there are no roads navigable by vehicle. People here are mainly Buddhists and socio-culturally near to Tibetan culture. Some unique cultural practices like polyandry marriage, the headman system and celibacy system (a tradition of being remained second born unmarried) exist there. This study discussion is based on 255 survey questionnaires administered to 15 to 49 years old, 1 FGD and 8 focused structured interviews.

This chapter discusses the limitations of the study. We discuss study results in the light of additional secondary data collected during fieldwork and also data from the national reproductive health policy, protocol, essential medicine list and other previous relevant studies done in Nepal and international settings. Mustang district was selected for this study project since the circular mobility of a large number of youth from Mustang mainly to India is documented in district level publications and I have also observed this myself during my tenure in the district as well. In my previous small scale study done in Jhong VDC also shows seasonal mobility of young people. The main focus of this study was to assess three determinant factors of STDs/HIV transmission risk; exposure, condom use and treatment seeking behaviors. The rationale for this study was suspicion that the mobile group may be at a higher risk of contracting STD/HIV themselves and as a consequence may serve as a bridging population in transmission of STDs/HIV in this community.

The results of the research supported our hypothesis. We found firstly, that the mobile group was comparatively more engaged in risky sexual behaviors than the non-mobile group. Secondly, a higher percentage of the mobile group reported that they had suffered from STDs than the non-mobile people in the past 12 months. It was also found that NGOs have mobilized the existing headman system in various community development activities. These study results will be discussed further in this chapter.

### **5.1 Risk behaviors**

Our study result shows that comparatively more mobile respondents were involved in more risky sexual behavior than the non-mobile respondents. We found that those having more than one sexual partner in past 12 months were two times more numerous (29% vs. 15%) in the

mobile group than in the counterpart non-mobile group. Assessing findings of our study with similar comparative study of migrant and non-migrant is not possible because other studies measured [10, 73] number of regular and casual partners separately. In our study we just asked number of partners in past 12 months. However in a study done in Peru [63], it was found that the, mean number of partners in the past year among HIV positive males was significantly higher (1.6 vs. 1.1,  $P = 0.03$ ) compared to the control group. In the same study, those HIV positive men's female sexual partners who were HIV positive as well reported mean number of partners (1.1 VS 1.0) in comparison to control group. Within the light of finding, when we consider our find we could draw following inferences; firstly, size of the people who reported more than one partner was higher in mobile group. Based on mean and standard deviation of number of partners reported for past 12 months among the mobile group (mean  $1.7 \pm SD 1.17$ ) vs. non-mobile group ( $1.6 \pm SD 1.01$ ) indicate though proportion different, there were respondents who had had higher number of partner in both groups. That means either group has high risk for contracting STDs/HIV, still higher risk in mobile group.

When further analysis is done, It was found that out of 30 mobile respondents who had reported more than one partner, 28 were males and rest two were polyandrous females. Among the 28 males, 12 were married and remaining 16 were unmarried. In non-mobile group, out of 11 who had reported more than one partner, two were males and rest nine were females who were in polyandry marital union. Between the two men, one was married and the other was unmarried. Our finding of more than one partner among women in polyandry marital union shows a unique culture led situation which increased risk of contracting STDs/HIV in this community. Since the research done in India found that women are infected mainly by their only sexual partner (their husband), the polyandry system indicated magnified vulnerability of the women in Mustang to STDs including HIV. Further study in this area is needed.

It is noteworthy that a substantial proportion (36%) of mobile respondents, who reported visit to CSWs were married males of above 35 years of age. Overall, more mobile respondents were intimate with non-regular partners than non-mobiles. By gender, mobile males were more prone to engage with CSWs and unknown persons. But among females, sexual relationship with non-regular partners had been reported more in non-mobiles. We found three females who reported sex with lover; one was a married mobile female and two were unmarried non-mobile females. A study done among 126 HIV positive women in India found out that 79% (100) of their

husband were HIV positive [60]. It shows potentiality of sexual net workings which may act as a way of passing HIV virus once it get chance to enter in this community.

Our findings on the mobile respondents showed that higher the involvement with high-risk partners (CSWs), higher is the chance of HIV infection. This is consistent with other studies done in Nepal in different settings. In a study done in Kailali district of Nepal, 17% of the male migrants reported that they had visited CSWs in the last 12 months whereas this figure was only 7.8 % among the non-mobile group. Furthermore, involvement with CSWs had been shown to increase with increase in mobility. Again, Seven percent of the international migrants reported that they had visited other women as compared to 2% for the same among non-migrants. Among the international migrants, 50% of them reported that they had visited CSWs within the country while 33% of them had done so in Indian states where they had gone for work purposes. The Nepal behavior surveillance survey, 2002, found that 30% of male laborers visited CSWs.

In another study done in Achham district of Nepal, a higher percentage (14.3%) of the internal migrants reported visiting to CSWs compared to the international migrants (12.1%) within the past 12 months. Again, two out of every three of them were reported to have more than one sexual partner. Among international migrants, half of them reported having CSWs.

One other noteworthy finding was observed in this study - none of the non-migrants had reported to have CSWs as sexual partner. A possible explanation could be the unavailability of commercial sex workers as such in Mustang district. Then the question arose: how much is sex exchanged as gifts or reward? Our finding that both married and non-married mobile respondents were having sex with commercial sex workers were consistent with findings from the study done on northeastern migrant Thai men. In that study, 55% of married men and 43% of single men were reported to have sex with CSWs in the past 12 months. It was found that visits to CSWs starts before marriage at the initiation and encouragement of friends [66].

According to KK Holmes, at the individual level the risk of being infected with STDs depends upon the setting from which a partner is chosen, the frequency of partner change and sexual practices. In this study we found that out of the total 108 who reported their mobility out of country, almost all (105) went to India. It is noteworthy here that out of the 30 current self-reported STDs among mobile group, nearly three quarter 70% (21) of STDs reported were from those migrating out of the country. In India their destination was: Assam, Punjab, west Bengal

Delhi, Gorakhpur, Gwahati. These places have been recognised as high HIV prevalence areas with reported HIV>1% among ANC women [38]. Further analysis on STDs by partner found that out of 11 who had been reported to visit CSWs, 8 had suffered from STDs. These findings are in consistent with previous findings and indicate that mobile people exhibit the greater high-risk behaviour and consequently had the higher chance of being infected by STDs/HIV.

But in the context of there being nearly three times more females in the non-mobile group, one must consider the possible influence of gender on our findings. Another confounding factor to be considered is the higher percentage of polyandrous females in the non-mobile group. Actually, we found that those who reported more than one partner in both of the groups were all the females in polyandrous union (2 female in mobile group and nine in non-mobile group). That means except polyandrous female none of other females reported more than one partner. This indicates under-reporting of sexual partners by females.

Loutan and Woffers stated special risk related to place of destination besides the migrant's own risk behavior. FGD data found, male migrants to India had reported the incidents of unnecessary interrogation, ransom and detention at the hands of police at the border. The cases and taking their commodities by force had also been cited. The experiences of female mobiles were also not pleasant. They were experiencing the sexual harassment in India these days. The situation seems to be deteriorating day by day instead of improving clear from the version "it's not like in past, now people there become bad and bad, previously they used to address us traders as Bahanji( means sister with respect) but now they try to touch, pinch and used to spell offensive word".

The differences between mobile and non-mobile males visiting the CSWs were found to be insignificant. This result may have been influenced by lower male samples, overrepresentation of females and higher polyandrous respondents in non-mobile group.

## **5.2 Condom Usage**

Our result shows that overall condom use was low in general. Between the two groups, higher percentage of mobile people used condom in their last sexual act. The possible explanation may be as follows: It was the younger people who generally migrate. Since they were away from

home without any parental monitoring, they were easily tempted to indulge in extramarital sexual activities. Again, those young men were better educated, had greater awareness about the STDs through access to the advertisement campaigns and also had easier access to health care services in the Urban area they had migrated to. These factors might have made them sensible enough to use condoms in their extramarital affairs.

In our study, it was found that the use or non-use of condoms was highly dependent upon demographic and social variables. In our study, it was found that percentage of condoms users was the highest in 35 & above age category and unmarried within the mobile group. Among the young people, both mobile and non-mobile people were found to use condoms. Further, within the 35 & above age group and unmarried, the use of condoms by mobiles is found to be much higher than those of non-mobiles. The reason behind the proportionately greater use of condoms by mobiles might be their greater awareness of benefits of using condoms, accessibility, purchasing capacity and relatively unsafe environment they were living in. The use of condoms by non-mobiles seems to be primarily for family planning purposes.

The reasons behind non-use of condom were found to be unavailability, non-satisfaction to users. A study done in Thailand among mobile males found that drinking alcohol and being in a hurry were associated with non-use of condoms. These findings may be equally relevant to Nepalese case too [66]. The results were found to be consistent with qualitative study done in Khutsong, a town of south Africa, which showed that even when condoms were available in retail shop, there were instances people got engaged in unsafe sex due to lack of money [66]. In our study also, 11 (five mobile and six non-mobile) out of 94 cited the lack of money as a reason behind the non-use of condoms by them.

An important fact related to social status of women had also emerged during the study. It was found that women were forced to adopt family planning methods such as mini-lap and Depo-provera instead of their husbands using condoms. It indicates the women's inability to bargain in male dominated society. A study done in the rural areas of Mexico among wives of migrants found that the concept of marital fidelity and trust hinders women from talking and negotiating for condoms with their husbands [58]. This may be true for this community as well.

This finding has great importance from health services delivery point of view. The condom shared 1.1% in total Contraceptive Prevalence Rate. Up to now family planning program

emphasized on hormonal and permanent surgical contraception. Our finding indicates need to change perspective of family planning in the context of emerging HIV/AIDS in Nepal in favor of encouraging condoms.

### **5.3 Self-reported STD**

The study found that there were self-reported STDs of 20% among the mobile and 8% among the non-mobile people which is higher than the corresponding data found from previous studies in Achham, Kailali and Dadeldhura districts (see Table 1). However, other factors need to be considered before drawing any conclusions. The Achham and Kailali studies had compared only males by migratory status. The third study done in Dadeldhura district included both males and females but all the studies were carried out in a health camp setting. So higher proportion of self reported STDs in our study should be considered as acceptable. It is well known that service provider data suffered from under-representation. Our study is community based which ensures the higher representation and consequently that might have resulted the higher number of self-reported STDs. Further, previous studies were based on laboratory test. But our study was based on self-reported STDs symptomatology. On the negative side, however, our study might have missed to measure some asymptomatic cases.

The higher number of self-reported STDs among the married and 35 and above age group may be due to longer exposure. This finding is in consistent with other findings such as 4 out of 11 mobile male respondents visiting to CSWs in past 12 months. And other explanation may be the low (1%) consistent condom use among both mobile and non-mobile group.

By STDs symptomatology, it was found that mobile males suffered more from gonorrhoea whereas non-mobiles suffered more from syphilis. Based on existing STDs/HIV scenario of prevalence rate of 0.7 to 6.6% HIV among STDs cases [25], there may be 0.2 to 2 HIV cases in the mobile group and up to 0.5 among non-mobiles in our study population. So for the conclusive result and to understand the true magnitude of STDs/HIV problem in this district, a laboratory based study also needs to be done.

## **5.4 Cure seeking behavior**

### **5.4.1 Response taken and time gap**

Prompt and proper treatment of STDs reduces the duration of infectivity and prevents the complications. In our study, it was found that every three out of five sought cure for the reported STDs symptoms. Obviously, mobile group was prompt and sought care from health institutions followed by medicine shop. A possible explanation for these phenomena could be that they were better educated than the non- mobile group. Secondly, they were living in places with better health facilities and exposed to more preventive health care messages. So when they were sick, they got prompt treatment. There higher percentage of mobile males visiting CSWs and also using condoms indicate that they were engaged more in high risk sexual behaviors as being away from their regular partners.

FGD findings showed the reasons for not seeking cure as follows: remoteness, unavailability of medicine when visiting service provider. This shows there was greater inaccessibility of medical care for the non-mobile group. This is supported by looking at the existing service delivery pattern for sexually transmitted diseases. Peripheral health institutions are supposed to refer STD cases to a medical officer at district level. This indicates inaccessibility as it nearly takes six hours to reach the district hospital in Jomsom. But our FGD finding was that they felt it was better to go to a health post rather than hospital where they gave only “Cetamol”. of events. The peripheral health institutions are envisaged as the referral centers for Primary Health Care Centres or District Hospitals. Only a few antibiotics (Cotrimazole, Tetracycline, Injection Procaine Penicillin and Metranidazole) are included in the essential drug list for a health post and sub-health post. Actually, these drugs are meant for other bacterial diseases because these few drugs don’t cover all the required drugs as prescribed in reproductive health protocol. The question then arises: what role are the peripheral level health institutions actually playing? Are they referring as policy had envisaged or treating STDs with only the few antibiotics (a regimen which is inadequate)? This is a pressing area for further study.

### **5.4.2 Source of cure sought**

It was found that the majority of cure seekers were mobile males. However, some specific differences were also found. For example, none of the female non-migrants reported the

medicine shop as their source of care. This might be so because the only medical shop is in district hospital at Jomsom, which means the five to six hours walking distance. For the females living in the male dominated society and busy in their household chores, there wasn't enough time for them to visit the district hospital. With the study data revealing the extremely high proportion of male migrants seeking advice from friends for STDs and nearly half (48%) of STDs burden among those who migrated alone or with friends, it was clear that there is a link between risky sexual behavior, STDs and delays for its treatment with peer group influence and pressure. This finding is consistent with a study done in northern Thailand [66].

Our findings of multiple sources cited for the cure of STDs indicated the delay in getting proper treatment. This finding is consistent with a study done in Malawi among those attending STI clinic. In Malawi study, a substantial proportion of respondents had multiple sources of care with the time gap of up to four years. Also substantial proportion of them reported had unprotected sex during symptomatic period, which was also evident in our study [68]. In our study, a considerable proportion of the mobile group sought care from traditional healers but none from the non-mobile group. Among the three mobiles who sought treatment from traditional healers, two male mobiles sought treatment from Aamchi whereas a female mobile had reported a Lama as a source of care. It is noteworthy here that Aamchi is a traditional herbal healer based on Tibetan medicine but Lama is only a religious leader. This also indicates the shame and humiliation felt by the infected females in a male dominated society that force them to seek care from religious leader without any reasonable medical background in secret. It also indicates need of bringing Aamchis in mainstream of STD/HIV prevention and control activities.

Seeking treatment from medicine shops is questionable in the context of only a quarter of Druggist provided the correct dosage and medication for STDs [78]. This study also raised the question of what will be the implication of the polyandry system on transmission of STDs/HIV.

### **5.5 STDs with respect to mobility and risk behaviors**

Our study had shown that mobile males who migrated out of the country for up to three months, alone or with friends and involved in trade, had a comparatively higher risk of being infected with STDs. The number of international mobile males having the STDs is found to be more



than twice the within- the- country mobiles. This might be so because those who migrated outside the country had done so alone or with friends in absence of their wives creating the feeling of loneliness and making them more vulnerable to the peer pressure or influence. This is consistent with the findings from the similar studies in Thailand and Bangladesh. However, in case of females, mobility whether it is within or outside the country doesn't make much difference upon their STDs risks.

Our findings are consistent with the similar study done in Cameroon; study had found that males who were away from the city for more than 30 days had 7.6% HIV vs. 1.4% among those who remained in town. Among those who migrated for less than 30 days, there was a lower prevalence of 3.4% [13].

Our study has found that the headman system has well set structure, function and norms. It had already involved itself in reproductive health issues and other community development activities. So they can be mobilized with advantage for prevention and control of STDs/HIV too.

Our study had found the people engaged in alcohol trade through the neighboring Dolpa district. Due to objection of the Maoist insurgents, the trade had to be carried through the very difficult terrains and areas. This also increases the possibility of transmission of STDs/HIVs in the remotest parts of the country.

This study has shown the importance of migrant based approach both to prevent HIV in those areas where it still hasn't accessed and also to reverse it's proliferation where it has already found reached.

Since this is a cross sectional study, the following points should be considered before generalization of this study's findings. Firstly, we found an association between risk behavior and mobility status but it does not mean that risk behavior was caused by mobility only. Secondly, since only a verbal assessment was done for measuring the self-reported behaviors and self reported STDs, its validity and reliability become questionable. One may hesitate to disclose the truth due to the shame and stigma associated with STDs. A study done in Bangladesh found that 16 mobile respondents who reported no history of sexual exposure were later found to be syphilis positive by laboratory tests [72].

To assess the reliability of data generated from self-filled questionnaires and interviewers' administered questionnaires, we tested it by assessing the percentage of STDs by mode of data collection. We found that out of 150 questionnaires administered by interviews, 18 (14%) reported STDs. In self-filled mode, out of 105 questionnaires, there were 20 (19%) who reported STDs. The difference in reported STDs by questionnaire administration style was found to be significant ( $P = 0.036$ ). This indicates an under-reporting among illiterate. Furthermore we found the gender-based disparity in reporting of sexual behavior. For example, only females those who were in polyandry union had reported of having more than one partner in both mobile and non-mobile. Amazingly, none of the male respondents reported had reported being in polyandry marriage. Again, 70% of STDs cases in women could remain asymptomatic. Hence syndrome based assessment of STDs is not sensitive especially with women. So there might be a high possibility of under reporting of STDs in this study.

Another limitation of this study is the lack of information on the sexual culture of this community like norms, meanings, mores, which is very important to understand the context of high-risk behaviors in any community. Thus polyandry marriage, celibacy and the Nhelu system and its potential impacts on STDs/HIV transmission remained unexplained. So it will probably be worthwhile to do an ethnographic study on sexual culture of this community.

## **5.6 About absentee population and outsider coming to Mustang district**

### **5.6.1 Mustang to outside**

While preparing sampling frame, we deducted 274 absentees who were out from Nepal during our study period. To understand the influence of absentees on our study findings, we also collected information on the absentee population from FCHVs, the ward representatives and the village headman. We got information on only 172 absentees. Out of this, 67% had migrated out of Nepal and the rest 33% were within the country. It was found that 58 people had migrated within the country & almost all of them (90%) went to Katmandu. Among them 67% were males and the rest were females. Among those gone out of Nepal, the majority 63% (74) were male and 34% were female. By destination, three quarters (74%) reported having gone to America, India 10%, and Japan 8%, Korea 3%, rest went to, Germany, Taiwan, and Hong Kong. We were informed that the long-term migrants used to come home after 5 to 7 years. It is found that almost all (90%) migrated for economic reason and the rest for education.

### **5.6.2 Migrants to Mustang district**

By study design we only included real residents of this district. We found that there were a total 55 individuals from other districts working in Kagbeni VDC, which is a tourist destination. The outsiders were mainly from Myagdi (76%) district and others. Others immigrants were from as far away as the central region. The majority were (81%) male and the rest female quite naturally of 15 to 49 age group. Half of them stated they were in Mustang for less than 90 days. One out of three had been there for six months. The longest stay was found to be more than 5 years; this was reported by 5%. There was none in Jhong VDC during our study period. It was also reported that 90 immigrants from adjacent Dolpa had come to Mustang during harvesting season for 30 to 45 days.

## **5.7 Shortcomings, problems encountered and strength**

### **5.7.1 Shortcomings**

1. Previously set study VDC “Lete” was replaced by “Kagbeni” VDC because very few people belonging to 15 to 49 years age group were present there at the time of this study. Ward number 1 (Sangta village) of Kagbeni was excluded from the study as one needs to walk for eight hours to reach there and there were only ten households.
2. Only one FGD was conducted instead of the planned 6 FGDs due to the ever worsening security situation and the subsequent festivals in the study areas. Often the people of one village would travel to other villages as guests.
3. Most women respondents could not understand Nepali and were extremely shy. It is found that literate interviewers from city were not of much help when interviewing rural respondents. Thus two primary school teachers (one male and one female) were trained and mobilized for that part of the survey.

### **5.7.2 Problems encountered**

1. Geography and weather: Since the study area is a mountainous district of Nepal, only walking or horse riding was available as means of transportation. This problem was made further difficult by continuous rainfall. As a river was flooded, landslides made it very difficult to travel. The river was swelled so much that the questionnaires, camera roll and batteries kept inside a bag on horseback got wet. According to the locals, that much rain had not fallen there since last 10 to 12 years.
2. In the context of the Maoist insurgency, the worsening security situation caused people to be less open to outsiders.
3. As it was weeding season, people worked in the field from early in the morning till dark. So we had to meet them in the evening when they came back from the fields and consequently we would have to stay in their place overnight. That raised the overall cost.

### **5.7.3. Strength**

Mobilization of local resources: Respondents participated in the study willingly. The researcher stayed in the community and carried out qualitative data herself.

## **5.8 Limitations of the study**

### **5.8.1 Limitation in the design**

A cross-sectional comparative study design was employed for this study. This design was chosen since it was the most feasible design within the available time and limited resources. Cross-sectional design is useful to measure level of exposure or possible risk factors and disease at same time. Our study objectives were to compare three key factors of sexually transmitted disease; exposure, condom use and treatment seeking behavior among those who were mobile with respect those who were not in the past year. So it was the most suitable design with respect to the objectives of the study. However, this design has the limitation that it cannot show any causal relationships since both the exposure and outcome are measured at the same time [78]. This design only indicates an association between potential causal factors and outcome.

### **5.8.2 Biases**

Bias is any distortion in reality of findings. To keep bias at a minimum we employed the following strategies.

#### ***5.8.2.1 Selection Bias***

Firstly, we did a community based study to get a more complete picture because a clinic\hospital based study would represent only a fraction of society because those who visit a service provider are very often well informed, educated or vice versa poor, very sick. Secondly, the study was conducted during July to October before the residents usually migrate out of this district. Thirdly, we applied a two tier sampling method. At first, study VDCs, Kagbeni and Jhong, were selected considering geographical, social and cultural features. Then a complete sample frame was prepared from village VHWs register. The household list was updated with the input of VDCs chairman and respective ward FCHVs not to drop any of the potential subjects. Finally, samples were selected randomly. The other strategy was the inclusion of only the 15 to 49 age groups for this study.

Despite those precautions, four selection biases occurred in this study. The first was the selection of the Jhong VDC as representative of upper Mustang. The findings based on Jhong may differ from most poverty ridden VDCs and those VDCs with the highest polyandry cases in upper Mustang. Secondly, the sample list was prepared by excluding all the adults who were not

there during the study period. In a way, it became a selective randomization. The selective randomization resulted in there being comparatively more women than men in the samples that was very obvious in the non-mobile group. Furthermore, the study had found that 98% of the respondents migrated seasonally, but that didn't represent a risk of STDs/HIV transmission for all types of migration in Mustang. Another bias can lie with the inclusion of the 15 to 49 age groups only, which means that the study systematically excluded those below 15 years and those above 49 years, who may also be at risk of contracting STDs/HIV. Still more, the classification into mobile and non-mobile groups is not in itself rigid since it cannot be guaranteed that people migrating for social reason may not also engage in risky behaviors.

### **5.8.2 Information Bias**

To control for information bias, we did a community based study. The quality and quantity of the data depends upon respondents understanding the importance of the study and his or her consent. At the outset of study we coordinated with the headman, the mother's group chief, and teachers. FCHVs of the respective wards were recruited as facilitators for this study. Furthermore we collected both quantitative and qualitative data from the community through various sources. This combination of methods and triangulation of results enables us to understand the context more clearly and also verified survey findings to some extent.

Since sexuality is a sensitive issue, various approaches were taken in this study to get accurate information. Firstly, based on the feedback of the pilot study; local terminology for STDs was used during interviews. Before the questionnaire was administered, respondents were clearly informed on the objectives of the study, and assured confidentiality. After getting verbal consent, trained local school teacher administered the questionnaires to illiterate respondents of respective gender. To maintain privacy, administration of interviews was done in a corner or safe place. Also when potential respondents said that we should come at another time or day, we did so. Still more, for the educated, self-filling of questionnaire while maintaining privacy was encouraged. It was made voluntary for the respondents to write one's signature in the questionnaire. A supervisor did monitoring and cross-checking of data collection in field.

Besides the above steps, there is still a chance that there were under-reporting because there is social stigma tied up with risky sexual behavior and STDs. So it is possible that the respondent may just have given "socially acceptable" answers. This may have distorted our findings. To

counter bias due to non-response, we carried out analyses based on actual number of responses only.

#### ***5.8.2.1 Recall bias***

The study included a number of questions, which needed to be answered based on memory. To help their recollection and get correct answers, questions were arranged in sequential order. During the pilot study, we found it especially difficult to get exact replies on temporal issues with the mature, illiterate respondents. They often replied in the context of their ethnic calendar, which was quite different from the national calendar. For example, their new year is called “Lhosar” and it occurs on March, the usual time to comeback home from migration. So to account for time, we used festivals as time markers and prepared a list correlating their festivals with the national calendar months. So whenever difficulty with estimating time arose, interviewers used the list as a time marker and translated it into the Nepali calendar in the questionnaires. Similarly we prepared a list of STDs symptoms in Nepali then put local terms side by side and used during data collection.

#### ***5.8.2.2 Interviewers bias***

To minimize information bias and get correct information, interviewers were trained and a standardized structured questionnaire was used. The whole data collection was monitored and supervised by the researcher herself and a supervisor appointed for the fieldwork. In the field, the filled-in questionnaire was checked by the researcher herself.

### **5.8.3 Validity and reliability of study**

An assessment of the HIV/AIDS situation by self-reported risk behaviors and STDs symptoms may have an inherent weakness with regard to validity and reliability due to the potential under-reporting of such behaviors. To maintain validity and reliability apart from the control measures already mentioned above, different steps were taken. First, we employed the triangulation of methods and we sought to present data in an integrated way. A comparison of findings between self-reported data and data from the interviewers administered questionnaires is carried out to check the reliability and validity of self-reported risk behaviors.

#### ***5.8.3.1 External validity***

National HIV Sentinel Surveillance data, DHS survey findings, data from district Health Management Information System, the service provider register and RH Policy and Protocols were collected and compared with our own study results. Also comparison of our findings with study done in other setting was carried out.

Considering the above potential limitations of the study, our findings provided health services planners and managers at national level and peripheral level some very valuable information which will be useful for planning and implementing STDs/HIV/AIDS prevention and control activities in Mustang district, Nepal.



## CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

---

### 6.1 Study conclusions

This study was done in a mountain district of Nepal. Our conclusion is based on the survey data from 255 respondents. The proportion of STDs among the study population is alarmingly higher than the national prevalence of STDs/RTI/HIV in 2000. Still we think this proportion might be affected by the stigma and less sensitive tools that we used. We do think that the proportion of STDs may be much higher than what we found. It means that there may still be many hidden and unreported cases in the community.

The main finding of the study is that mobile group is at the higher risk of contracting STDs. They are also associated with risky sexual behaviors. The situation is further worsened by the lower usage of condoms which act as barrier for transmission of STD's causative agents. Although, the care seeking behavior seems to be adequate, the efficacy is questionable in the context of a weak health system and their behavior of seeking care from multiple sources. That might also lead to delayed initiation of proper treatment. All these factors will enhance the cycle of transmitting STDs and ultimately the spread of HIV in this community.

## **6.2 Recommendations**

1. To map out the true magnitude of STDs problem in this community, a laboratory based study has to be conducted.
2. The STDs/HIV prevention program should focus on the mobile population. Condom promotion should focus the message on condoms as effective means to stop transmission of STDs, not only as means to avert pregnancies. The headman system should be incorporated into STDs prevention and control activities.
3. To understand the context of high risk behavior, an ethnographic study on sexual culture and morale in this community should be carried out.
4. District HIV co-ordination committee should be activated.
5. To further understand care seeking behavior for sexually transmitted disease, research on providers (Aamchi) should be carried out.
6. An explorative study of the “Headman system” on its strength, weakness and opportunities and threat would be very useful for mobilization of this important community resource for prevention and control of STDs/HIV/AIDS.

## References

1. Farmer P. *AIDS and Accusation: Haiti and the Geography of Blame*. 9<sup>th</sup> ed. University of California Press; 1996.
2. UNAIDS. *Report on the Global HIV/AIDS Epidemic*. Geneva; 2002
3. Jonnathan M, Tarantola D, editors. *AIDS in the World II: the global dimensions, social roots and responses*. New York: Oxford University Press; 1996
4. UN Population Division, Department of Economy and Social Affairs. *HIV/AIDS Population Impact and Policies*.
5. WHO. *Regional Task force on HIV/AIDS: Reports of its first meeting at SEARO*. New Delhi; 1992  
SEA- AIDS-129.
6. WHO, UNAIDS. AIDS Epidemic Update 2003.
7. WHO, UNAIDS. Global Summary of the HIV/AIDS epidemic, December 2003. Available from:  
URL:<http://www.who.inh>
8. WHO. *The World Health Report: shaping the future*; 2003
9. WHO. *Global prevalence and incidence of selected curable sexually transmitted infections: overview and estimates*; 2001
10. UNAIDS/UNICEF/WHO, *Nepal Epidemiological Fact Sheets*. Available from:  
URL:<http://www.unaids.org.com>
11. National Center for AIDS and STD Control. *Cumulative HIV/AIDS Situation of Nepal as of Dec.; 2003*
12. Lagarde E, Loeff vander M Schim, Enel C, Holmgren B, Dray-Spira, Pison G, et al. "Mobility and spread of human immunodeficiency virus into rural areas of West Africa". *International Journal of Epidemiology* 2003 (32): 744 -752
13. Lydie' N, Robinson NJ, Ferry B, Akam E, Loenzien De M, Abega S et al. "Mobility, sexual behavior, and HIV infection in an urban population in Cameroon". *Epidemiology and Social Science* 2004; 1 (35): 67-74
14. Rio DC, Sepu'lveda J. "AIDS in Mexico: lessons learned and implications for developing countries." ". 2002; (16): 1445-1457
15. BBC News. Asia warned of Aids catastrophe. Access on 06.07 2004. Available from:  
<http://news.bbc.co.uk/2/hi/health>
16. New Era. *HIV/STD Prevalence and risk factors among migrant and no-migrant males of Achham district in Far-western Nepal*. Katmandu; 2002
17. New Era. *HIV/STD Prevalence and risk factors among migrant and no-migrant males of Kailali district in Far-western Nepal*. Katmandu; 2002
18. Giorgi Pkhakadze. "Poverty migration and HIV/AIDS. In Dadheldhura district, Nepal". ILO, National Centre for AIDS and STD Control; 2002 July
19. Central Bureau of Statistics. "Statistical Year book of Nepal." 2001
20. Gurung B Y, Basnet B. "An overview of Polyandry system in Upper Mustang". In *Mustang Sandesh*; 2000; 43-45
21. "District Profile Mustang". District Development Committee, Mustang 2001.

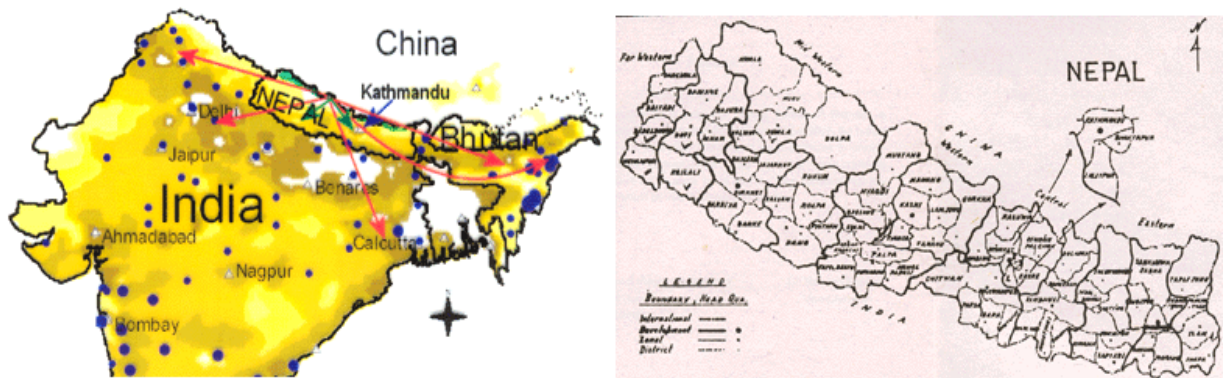
22. Haimendorf CF. *The Sherpas transformed, social change in a Buddhist society of Nepal*. Katmandu (Nepal): CINAS Publications; 1975
23. Shrestha SD. "Seasonal out-migration in mountain community: A case study of Jhong VDC of Mustang district of Nepal." Kathmandu, Nepal: Tribhuban University, Department of Sociology and Anthropology; 2002.
24. Department of Health. "Annual Report 2001/2002": Kathmandu, Nepal;2003
25. MOH, NCASC. *National HIV/AIDS 2001-2006*; 2001.
26. Wasserheit JN, Aral SO. "The dynamic typology of sexually transmitted diseases and propagation." *International Journal of Sexually Transmitted Diseases/AIDS* 1999; (10): 182-185
27. UNDP. "Human Development Report 2002." New York: oxford University Press;2002
28. Seddon D, Adhikari J, Gurung G. *The new Lahures: Forgein employment and remittance economy of Nepal*. Kathmandu: 1<sup>st</sup> ed. Nepal Institute of Development Studies: Jeewan Printing Support Press; 2001
29. "Free-anti-retroviral treatment on way." *The Himalayan Post (Nepal)* 2003 Nov. 26
30. SAARC Awareness year for TB,HIV/AIDS (access year 19 April, 2004)  
Available from: <http://www.unaids.org.com>
31. Bista BD. *People of Nepal*. Kathmandu: Ratna Pustak Bhandar; 1967
32. District Development Committee, Mustang: Participatory District Development Program; 1999
33. Gordan P, Armstrong E, *Sexual health and health care*. 2<sup>nd</sup> ed. DFID; 1998
34. WHO/RHR. *Guidelines for management of sexually transmitted infections*. Series Title: WHO/HIV/AIDS; 2001
35. Cohen SC, Hoffman FI, Royce AR, Kazembe P, Dyer RJ, Daly cc et al. "Reduction of concentration of HIV-1 in semen of sexual transmission of HIV-1". *The Lancet* 1997 Jun 28 (349): 1868-1872.
36. UNAIDS. *The public health approach to STD control: UNAIDS Technical update (UNAIDS best practices collection)*, Geneva: 1998
37. UNAIDS, UNICEF, USAID. *Children on the Brink: A joint report on orphan estimates and program strategies*; 2002
38. WHO. *Executive Summary: report on the global AIDS Epidemic*. 2004
39. HIV/AIDS Profile India International Programs Centre, Population Division, U.S. census Bureau, HIV7AIDS surveillance data base June 2000
40. Central Bureau of Statistics. *Population Monograph of Nepal 2002*. 3<sup>rd</sup> ed. Kathmandu: CBS 2002
41. ILO News Release (ILO\98\31). Sex industry assuming massive proportions in Southeast Asia economic incentives and hardships fuel the growth of the sex sector. Available from: <http://www.walnet.org/csis/reports/ilo-98-31.html>; 1998
42. Bandyopadhyay M, Thomas J. "Women migrant workers' vulnerability to HIV infection in Hong Kong." *AIDS Care* 14 (4); 509-21
43. "Extra marital relationships of husband caused HIV to whole family." *The Kathmandu Post* 2003 July
44. National News Agency, Nepal. "Alarming status of HIV/AIDS in Parbat district, eight died." *The Gorkhapatra (Nepali daily)*: 23 May 2003

45. District Health Office, Mustang, Health Management and Information System data; 2001 to 2003.
46. Bhinde A, Karitar T. *Principel of Population Studies*. 1<sup>st</sup> ed. India: Himalaya Publishing House; 1997.
47. UNFPA. Population Issues briefing kit 2001: "Urbanization and Migration" access on 2004. 21.01 Available from <http://www.unfpa.org/modules/brief.kit>.
48. Anderson RM, May R. *Infectious Diseases of humans: Dynamics of control*. Oxford: Oxford University Press; 1991
49. Aral OS." Determinants of STD epidemics: implications for phase appropriate intervention strategies".
50. Holmes KK. "Human Ecology & behavior & sexually transmitted infections." Presented in colloquim "changes in human ecology and behavior: effect on infectious diseases". In Proc.Natl Academy Science USA, (91); 1994. p.2448-55
51. Treadwell LT. "Trends in Travel". In: NJ Zuckerman, editor. *Travel Medicine*. 1<sup>st</sup> ed. Chichester: John Wiley & Sons Ltd; 2001: 1-14
52. Shatarkshall R, Soskolne V. Migrant population and HIV/AIDS: the development and implementation of programmes, theory, methodology and and practice: UNAIDS best practices. UNESCO/UNAIDS. June 2000. Available from: <http://www.unaidst.org.com>
53. Herdt G. *Sexual cultures and Migration in the Era of AIDS: Anthropological and Demographic Perspectives* Oxford CaredonPress; 19097
54. Loutan L. "The health of migrants and refugees". In: NJ Zuckerman, editor. *Travel Medicine*. 1<sup>st</sup> ed. Chichester: John Wiley & Sons Ltd; 2001: 467 - 76
55. Wolffers I, Fernandez I, Verghis S, Vink M. " Sexual behaviour and vulnerability of migrant workers for HIV infection." Culture Health & Sexuality 2002; 4 (4); 459 – 73
56. UNICEF, UNAIDS, WHO. "Young people and HIV/AIDS opportunity in crisis."; 2002
57. Rao GG. "Gender, sexuality and HIV/AIDS: The what, the why and the how." XIIth International AIDS Conference Durban, South Africa International Centre for Research on Women; 2000. p 1-8
58. Hirsch SJ, Higgins J, Bentley EM, Nathanson AC. "The social construction of sexaulity. marital infidelity and sexually transmitted disease - HIV risk in a Mexican migrant community." American Journal of Public Health 2000; 92 (8): 1227 – 34
59. Janneke HM, Wijgert DV, Padian SN. "Heterosexual transmission of HIV." In: *AIDS and the heterosexual population.*: Harwood Academic publishers; 1993.p. 1-12
60. Newmann S, Sarin P, Kumarasamy N, Amalraj E, Rogers M, Madhivanan P & et al . "Marriage, monogamy and HIV: a profile of HIV infected women in South India." International Journal of STD & AIDS 2000;11: 250-53
61. Agha S. "Sexual behaviour among truck drivers in Pakistan." Culture, health & Sexuality 2002 4(2): 191-206.
62. Sirithanaviboonchai K, Choi HK, Griensven VF, Hudes ES, Visauratana S, Mandel SJ. "HIV infection among Shan migrant workers in northern Thailand". AIDS 2002; 6(16): 929-931
63. Johnson MK, Alacron J, Watts MD, Rodriguez C, Velasquez C, Sanchez J & et al. "Sexual networks of pregnant women with and without HIV infection," AIDS 2003;17 : 605-12.
64. Pinkerton DS, Abramson P. "Effectiveness of condoms in prevention of HIV transmission". Social Science and Medicine 1997; 44 (9); 1303-12.

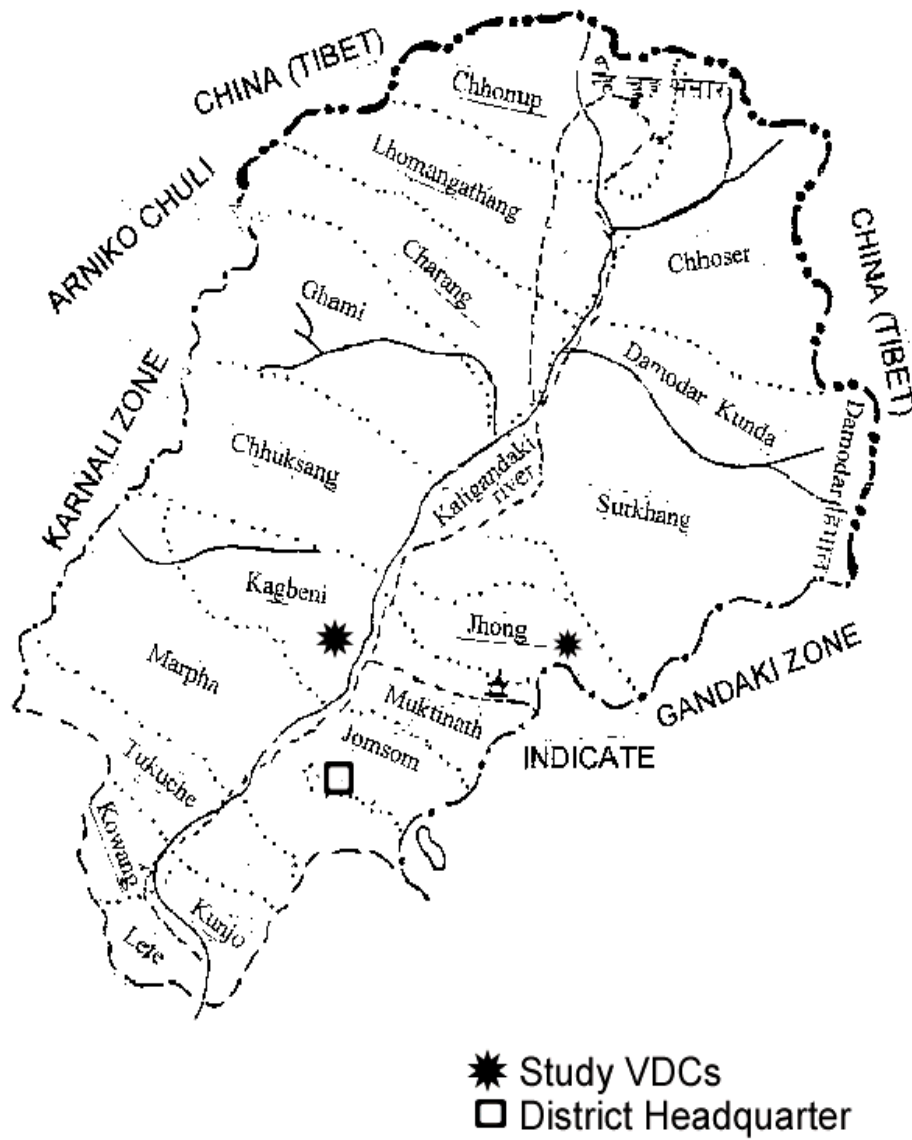
65. Phail MC, Campbell C. "think condoms are good but, aai, I hate those things: Condom use among adolescents and young people in a southern African township." *Social Science and Medicine* 2001; 52 :1613-27
66. Maticka-Tyndale E, Elkins D, Haswell E, Rujkarkorn D, Kuyyakanodd T, Stam K. "Contexts and patterns of men's commercial sexual partnerships in northeastern Thailand: implications for AIDS prevention." *Social Science and Medicine* 1997; 44 (2):199-13
67. Karim SS, Samb N, Tempesta S, Mulanga-Kabeya C, Hanzel D, Sow SP & et al. "Prevalence and risk factors of cervicovaginal HIV shedding among HIV-1 and HIV-2 infected women in Dakar, Senegal." *Sexually Transmitted Infections*. Access on 2002.04.21. Available from: <http://www.sextransinf.com>
68. Zachariah R, Nkhoma W, Harries AD, Arendt V, Chantulo A, Spielmann MP & et al. "Health seeking and sexual behaviour in patients with sexually transmitted infections: the importance of traditional healers in Thyolo, Malawi". *Sexually Transmitted Infections* 2002, 78: 127-29.
69. Thomas JC, Clarke M, Robinson J, Monett M, Kilmarx HP, Peterman AT. "The social ecology of syphilis". *Social Science and Medicine* 1999 48: 1081-94.
70. Guidelines for sexually transmitted infections surveillance." WHO and Joint UN Program on HIV/AIDS. Available from <http://www.who.int/emc>
71. Lurie NM, Williams GB, Zuma K, Mkayam-mwamburi D, Garnett GG, Strum WA & et al. "The impact of migration on HIV-1 transmission in South Africa: "A study of migrant and non-migrant men and their partners." *Sexually Transmitted Diseases* 2003; 30 (2): 149-56
72. Gibney L, Saquib N, Metzger J. "Behavioral risk factors for STD/HIV transmission in Bangladesh's Trucking industry." *Social Science & medicine* 2003; 56: 1411-24
73. Creese A; FloydsK; Alban A, Guinness L. "Cost effectiveness of HIV/AIDS intervention in Africa: a systematic Review of the evidences." *The lancet*; 359 9318): 1635-43.
74. S Teshome. "Poverty and illiteracy aggravate abduction," Available from: <http://www.womankind.org.uk/main/teshome.htm>
75. JRS Malungo. "Sexual cleansing (Kusalazya) and levirate marriage (kunjilila mung'anda) in the era of AIDS: change in perceptions and practices in Zambia." *Social Science & Medicine* 2001; 53: 371-82
76. UNAIDS. Best Practices Series. "A review of household and community responses to the HIV/AIDS epidemic in the rural areas of Sub-Saharan Africa."; 1999
77. Altman DG. *Practical Statistics for medical Research*. Chapman & Hall, London; 1991.
78. Bista KP, Chaudhary. "The practice of STI treatment among chemist and druggists in Pokhara, Nepal". *Sexually Transmitted Infections* 2002, 78: 223-26.

## Appendices

### Appendix 1: Map of Nepal and study area



### Mustang District



## **Appendix 2: Information for respondents and informed Consent form for Survey**

### **Introduction**

Namste. (**dai/ bhai/didi/bahini** as *appropriate with age of respondent*)

I am, working for a research Project. We are collecting information about migration and STD/HIV in this community. This information will help us, to get better idea about the nature of migration and migrant's vulnerability to STD/HIV of this community. The data can be used for developing effective prevention program.

### **Informed consent**

Regarding the nature of this study, I am going to ask you some very personal questions. May be it will be difficult to answer or you feel shy to answer. I assure you for confidentiality of your answers. I guarantee what ever answer you provide, will be kept confidential. For the purpose of confidentiality, no name will be written in the questionnaire. We just write here serial number (show questionnaire form). If you feel some question awkward or not want to reply, you can leave them or you can self-complete the questionnaire if you like. After completing the form please drop into this box.

You are free to respond the questionnaire or to say no, if you don't want to take part in interview or even if you started to reply my question and not like to continue', you can leave at any time. – Without giving me reason, and without being afraid.

Your honest information is very important to know about migration nature and people knowledge to protect oneself, their perception and their behavior. The research team greatly appreciates for your time and response. **Do you want to participate in this study?**

The data furnished by study will be kept confidential strictly. Data will be published in the summary form and statistical table with no name and reference of particular person.



### **Appendix 3: Information for FGD participants and informed Consent form for FDG**

Namste. (*dai/ didi/aama/ba as appropriate with age of respondent*)

I am Sumitra Devi Shrestha, a student from University of Oslo. Most of you know me, as I had worked here before. But, at this time I am coming to your place as a researcher. I would like to conduct this research as a part of my University studies. The aim of my study is to understand about vulnerability of migrants and ways to mobilize existing community based organization for STD/HIV prevention and control.

You are invited for this meeting because you all have experiences of migration directly or indirectly. In our discussion we will share ideas and experiences. There is no right or wrong answer. Please feel free to share your idea even it is different than others. We are tape-recording our discussion, so that any points we discuss will be not missed.

All your comments will be kept confidential. Please remember we are interested in positive as well as negative comments. If you want to follow up something that someone has said or agree or disagree or give an example please feel free to do .I want to hear from each of you, so if someone is talking a lot I may ask you give opportunity to other. I may also call some to share view. I want to make sure that everybody takes part in our discussion.

Lets begin today's program by short introduction. Tell us your name, the place you visited last year and problem if any, you faced.

#### **Informed consent**

You are free to take part or not in this FGD, even if you started to discuss and not like to continue you can leave process at any time. – Without giving me reason, and without being afraid. However, your experience and thoughtful information would be very valuable to understand and devise viable solution.

I would greatly appreciate for your time and response.

#### **Would you like to take part in this study?**

I assure you that any information you have given will be kept confidential. Data will be published in the summary form and with no name and reference of particular person.

## Appendix 4: Survey Questionnaire

Questionnaire No: \_\_\_\_\_

### RESULT CODE

- .
1. COMPLETED
  2. Partly Completed
  3. Selected for FDG also
  4. Others \_\_\_\_\_

### INSTRUCTIONS FOR THE QUESTIONNAIRE FILLING

First GREET, Inform OBJECTIVE of study, request for PARTICIPATION, If OK.  
Assess mode of questionnaire filling

### FOR RESPONDENTS FILLING THIS QUESTIONNAIRE THEMSELVES

1. Read questions, and understand
2. Then tick mark to the corresponding box ☐ if answer is yes.
3. Check, may be you left some questions unanswered
4. Then drop the completed form into box put in the corner.

VDC:

1. Jhong ☐
2. Kagbeni ☐

<b>Social and Demographic information</b>	
1. What gender are You or Gender as observed:	
1.1. Male <input type="checkbox"/>	
1.2. Female <input type="checkbox"/>	
2. How old are you?	
Age in years	
3. Which ethnic group you belong to:	
3.1 Gurung <input type="checkbox"/>	
3.2 Bista <input type="checkbox"/>	
3.3 Thakali <input type="checkbox"/>	
3.4 Others specify _____	
4. Your highest educational attainment?	
4.1 No education <input type="checkbox"/>	
4.2 _____ Years	
5. What is your current marital status? ( <b>Check only one</b> ):	
5.1 Married monogamous <input type="checkbox"/>	
5.2 Widow/widower <input type="checkbox"/>	
5.3 Unmarried <input type="checkbox"/>	
5.4 Married Polygamy <input type="checkbox"/>	
5.5 Divorced <input type="checkbox"/>	
5.6 Polyandry <input type="checkbox"/>	
6. If you are married, your age at marriage or year _____	

<p>7. Do you possess following things: <b>(Check all that apply)</b>.</p> <p>7.1 Radio If yes <input type="checkbox"/>, how many _____</p> <p>7.2 Horse If yes <input type="checkbox"/>, how many _____</p> <p>7.3 Mule If Yes <input type="checkbox"/>, how many _____</p> <p>7.4 Sheep If yes <input type="checkbox"/>, how many _____</p>																		
<p>8. What is your occupation? <b>(Check one that apply)</b></p> <p>8.1 Agriculture <input type="checkbox"/></p> <p>8.2 Agriculture &amp; tourism <input type="checkbox"/></p> <p>8.3 Agriculture &amp; seasonal trade <input type="checkbox"/></p> <p>8.4 Agriculture, tourism &amp; seasonal trade <input type="checkbox"/></p> <p>8.5 Agriculture &amp; labor work <input type="checkbox"/></p> <p>8.6 Others, specify _____</p>																		
<p><b>Migration history:</b></p> <p>9. People used to be away from home for various reasons, have you also been away from home in last 12 months If, Yes 1 _____ If No, 2 _____</p> <p><b>IF NO, THEN SKIP TO QUESTION NUMBER 15.</b></p> <p><b>10. If yes,</b> Can you remember the name of the places you have been in last 12 months.</p> <table border="0"> <tr> <td>_____</td> <td>Period _____</td> <td>days/months</td> </tr> <tr> <td>_____</td> <td>Period _____</td> <td>days/months</td> </tr> <tr> <td>_____</td> <td>Period _____</td> <td>days/months</td> </tr> <tr> <td>_____</td> <td>Period _____</td> <td>days/months</td> </tr> <tr> <td>_____</td> <td>Period _____</td> <td>days/months</td> </tr> <tr> <td>_____</td> <td>Period _____</td> <td>days/months</td> </tr> </table>	_____	Period _____	days/months	_____	Period _____	days/months	_____	Period _____	days/months	_____	Period _____	days/months	_____	Period _____	days/months	_____	Period _____	days/months
_____	Period _____	days/months																
_____	Period _____	days/months																
_____	Period _____	days/months																
_____	Period _____	days/months																
_____	Period _____	days/months																
_____	Period _____	days/months																
<p>11. With whom you went there?</p> <p>11.1 Alone <input type="checkbox"/></p> <p>11.2 With spouse <input type="checkbox"/></p> <p>11.3 With family member but not spouse <input type="checkbox"/></p> <p>11.4 Relatives <input type="checkbox"/></p> <p>11.5 With friends <input type="checkbox"/></p> <p>11.6 With employer <input type="checkbox"/></p>																		
<p>12. What was the purpose of being away from Home? <b>(Tick all that apply)</b>.</p> <p>12.1 Social reason (visiting relatives, social gathering) <input type="checkbox"/></p> <p>12.2 To buy necessary commodities <input type="checkbox"/></p> <p>12.3 To visit religious place <input type="checkbox"/></p> <p>12.4 For seasonal trading <input type="checkbox"/></p> <p>12.5 For labor work <input type="checkbox"/></p> <p>12.6 Study <input type="checkbox"/></p> <p>12.7 If yes specify _____</p>																		
<p>13. What type of economic option you engaged?</p> <p>13.1 Factory work <input type="checkbox"/></p> <p>13.2 Agricultural worker <input type="checkbox"/></p> <p>13.3 Watchman <input type="checkbox"/></p> <p>13.4 Helper <input type="checkbox"/></p> <p>13.5 Others specify-----</p>																		
<p>14. At what age you first go out of your district?</p> <p>Age in years _____</p>																		
<p><b>Individual factors</b></p> <p>15. Have you ever heard about diseases or infection that can be transmitted through sexual relationship?</p> <p>If, yes 1 _____ If, No 2 _____</p>																		

<p>16. Do you know how Sexually transmitted disease like HIV is transmitted? <b>(Tick the ones that you believe are ways of getting HIV/STD).</b></p> <p>16.1 Pregnant mother to the unborn <input type="checkbox"/></p> <p>16.2 Casual sex <input type="checkbox"/></p> <p>16.3 Syringe and needle <input type="checkbox"/></p> <p>16.4 Deep kissing <input type="checkbox"/></p> <p>16.5 Sharing clothes <input type="checkbox"/></p> <p>16.6 Coughing/ sneezing <input type="checkbox"/></p> <p>16.7 Donating blood <input type="checkbox"/></p> <p>16.8 Mosquito biting <input type="checkbox"/></p> <p>16.9 Receiving blood <input type="checkbox"/></p> <p>16.10 Eating Jutho food <input type="checkbox"/></p> <p>16.11 Using the razor blade, after used by other person <input type="checkbox"/></p> <p>16.12 Others, specify _____</p>
<p>17. Did you have sexual contacts during past 12 months?</p> <p>17.1 Yes <input type="checkbox"/></p> <p>17.2 No <input type="checkbox"/></p>
<p>18. If yes, with whom you have sexual contacts during past 12 months? (Tick appropriate )</p> <p>18.1 Wife <input type="checkbox"/></p> <p>18.2 Girlfriend <input type="checkbox"/></p> <p>18.3 Occasional partner <input type="checkbox"/></p> <p>18.4 unknown person <input type="checkbox"/></p> <p>18.5 Sex worker <input type="checkbox"/></p> <p>18.6 Other <input type="checkbox"/></p>
<p>19. Sexual Behavior</p> <p>Well, how many sex partners you had in last 12 months?</p> <p>19.1 None <input type="checkbox"/></p> <p>19.2 One <input type="checkbox"/></p> <p>19.3 Two <input type="checkbox"/></p> <p>19.4 Three or more than three <input type="checkbox"/></p>
<p>20. Did you or your partner used condoms during last sexual encounter</p> <p style="text-align: center;"><b>If, yes    1 _____    If, No   2 _____</b></p>
<p>21. How often you use condom? <b>(Check all that apply).</b></p> <p>21.1 Uses sometimes with marital partner <input type="checkbox"/></p> <p>21.2 Uses never with marital partner <input type="checkbox"/></p> <p>21.3 Uses sometimes with casual partner <input type="checkbox"/></p> <p>21.4 Uses always with casual partner <input type="checkbox"/></p>
<p>22. If you do not use condoms, is there any reason for not using?</p> <p>_____</p>
<p>23. Do you think you are at risk of being infected?</p> <p>If, yes 1 _____ If NO 2 _____ If, Don't know 3 _____</p>
<p>24. How do you protect yourself from STDs? <b>(Tick all that applies).</b></p> <p>24.1 Use of condoms <input type="checkbox"/></p> <p>24.2 Sex only with husband or wife <input type="checkbox"/></p> <p>24.3 Reduction in number of partner <input type="checkbox"/></p> <p>24.4 No casual sex <input type="checkbox"/></p> <p>24.5 No commercial sex <input type="checkbox"/></p> <p>24.6 Avoid injection with contaminated needle <input type="checkbox"/></p>

24.7 Avoid blood transfusion <input type="checkbox"/> 24.8 Others specify_____
25. Did you ever suffered from any short of health \diseases problem in your private parts? 25.2 If yes, when_____
25.1 If yes, how many times? _____ Go to Question NO. 26 (If you are Male). Go to Question NO. 27 (If you are Female).
26. If you are Male, what are the problems? ( <b>Check the ones that you have</b> ) 26.1 Urethral discharge <input type="checkbox"/> 26.2 Dysuria <input type="checkbox"/> 26.3 Genital ulcers <input type="checkbox"/> 26.4 Pain urinating <input type="checkbox"/> 26.5 Burning pain on urination <input type="checkbox"/> 26.6 Others specify_____
27. If you are Female, what are the problems? ( <b>Check the ones that you have</b> ) 27.1 Abnormal discharge <input type="checkbox"/> 27.2 Itching and pain in genital parts <input type="checkbox"/> 27.3 Sore, ulcers in genital area <input type="checkbox"/> 27.4 Lower abdominal pain <input type="checkbox"/> 27.5 Others specify_____
28. When you had a genital discharge or ulcer during last 12 months, did you seek any kind of advice or treatment? If Yes 1 _____ If, No 2 _____
29. When you had a genital discharge or ulcer in the last 12 months did you? 29.1 Told your sexual partner(s) about the symptoms? <input type="checkbox"/> 29.2 Stop having sex when noticed symptom? <input type="checkbox"/> 29.3 Use a condom when having sex when noticed symptoms? <input type="checkbox"/> 29.4 Take medicine s when have symptoms? <input type="checkbox"/>
30. When you had a genital discharge or ulcer in the last 12 months, what you did? 30.1 Seek advice / medicine from a health institution/ private clinic <input type="checkbox"/> 30.2 Seek advice or medicine from traditional healer? <input type="checkbox"/> 30.3 Seek advice or medicine from shop or pharmacy? <input type="checkbox"/> 30.4 Ask advice from friends <input type="checkbox"/> 30.5 Did herbal treatment <input type="checkbox"/> 30.6 Others specify_____
31. When you had a genital discharge or ulcer in the last 12 months, when you seek care, 31.1 Under a week <input type="checkbox"/> 31.2 1 to 2 week <input type="checkbox"/> 31.3 more than two weeks <input type="checkbox"/> 31.4 Others specify_____

## Appendix 5: Question for Focus Group Discussion and Focused structured interview Question

A

1. When did you first go for trade/work outside your district?
2. How you reached there?
3. What sort of economic activity you engaged there?
4. How was your living arrangement?
5. How you got the present economic activity?
6. As a non-local what problems did you faced?
7. Do you know someone infected with STDs/HIV/AIDS in your place of migration?
8. Did any of you or your friend visited CSW's during migratory period?
9. Did migration have positive impact?
10. What you think could be done to prevent STDs/HIV/AIDS in your community?

### B. Participant of focus group

#### **Venue: Kagbeni VDC**

Name	Age	Destination	Economic pursuit	Migration type
1. Dhara Gurung	29	Singapore	Trade	Temporary
2. Phenjok Gurung	24	India	Trade	Seasonal migration
3.Chheptan Namgyal Gurung	35	India	Trade	Seasonal migration
4. Bhim Bahadur Nepali	28	India	Trade	Seasonal migration
5. Tenjing Gurung	22	India	Trade	Seasonal migration
6. Tenjing Serap Thakuri	19	India	Trade	Seasonal migration
7. Tashi Dhorje	45	India	Trade	Seasonal migration
8. Dhunduk Djorje	36	India	Trade	Seasonal migration
9. Oachhiring Gurung	22	India	Trade	Seasonal migration
10. Pemba Gurung	17	India	Trade	Seasonal migration

## Appendix 6: Check list for Pre-test

<b>1.Respondents Reactions</b>	<b>Acceptable</b>	<b>Not acceptable</b>	<b>Suggestion</b>
a. Availability of sample needed for study			
b. Work schedule of population that may affect availability			
c. Desire of population to participate			
d. Acceptability of question			
e. Clarity of the language used			
<b>2.Data collection Tools</b>	<b>Acceptable</b>	<b>Not acceptable</b>	<b>Suggestion</b>
a. Time needed to administer survey questionnaire/in-depth interview			
b. Sequence of question logical			
c. Accuracy of translation			
D.Handling and administering of tools			
e. Does pre-categorization suitable			
<b>3.Efficiency of team</b>	<b>Acceptable</b>	<b>Not acceptable</b>	<b>Suggestion</b>
a. Is training of interviewers adequate			
b. Output of each interviewer			
c. Is same findings from different interviewer or not			
d. Appropriateness of supervision plan			
<b>4.Procedure for data processing &amp; analysis</b>	<b>Acceptable</b>	<b>Not acceptable</b>	<b>Suggestion</b>
a. Use of data master sheet			
b. Effectiveness of data quality control			
<b>5.Scedule for research activities</b>	<b>Acceptable</b>	<b>Not acceptable</b>	<b>Suggestion</b>
a. time allowed for data collection			
b. time allowed for supervision			